LifeSize® Gateway™ User Guide

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About This Manual

The LifeSize Gateway User Guide describes how to install, configure and monitor LifeSize Gateways.

Related Documentation

The LifeSize Gateway documentation set is available on the LifeSize Utilities and Documentation CD-ROM and includes manuals and online helps. The manuals are available in PDF format.

Note You require Adobe Acrobat Reader version 5.0 or later to open the PDF files. You can download Acrobat Reader free of charge from www.adobe.com.

This manual uses the following conventions:

Convention	Description
Blue Headings in Upper Case	Level 1 headings introducing major sections.
☞	Pointing hand icon introduces a procedure.
orange link	Live links appear in orange.

1

CONFIGURING THE LIFESIZE GATEWAY

This section describes what you can configure and how to configure LifeSize Gateways, and includes the following topics:

- How to Configure Gateway Interface Users
- Viewing LED Information
- How to View General Info About the Gateway
- Viewing Address Settings
- How to Configure Web Settings
- Configuring Security
- About the Gateway Administrator Interface
- How to Obtain Status About the Gateway
- How to Configure Gateway Settings
- About Gateway Services
- Configuring Port Settings
- How to View Call Information
- About Gateway Alarm Events
- About Gateway Statistics
- Configuring Gateway Maintenance Tasks
- Saving Configuration Settings
- Importing Configuration Files

How to Configure Gateway Interface Users

- About Gateway Interface Users on page 2
- Adding Gateway Interface Users on page 2
- Editing Gateway Interface Users on page 3
- Deleting Gateway Interface Users on page 3

About Gateway Interface Users

Users must have the appropriate access level to log in to the LifeSize Gateway interface. With Administrator-level access, a user can configure the LifeSize Gateway and monitor LifeSize Gateway activity. You can view and manage the list of LifeSize Gateway users in the Users tab of the Device section of the LifeSize Gateway interface. The Users tab displays all currently configured users and their access levels.

There are three types of LifeSize Gateway interface users:

- **Administrator**—Full access to the LifeSize Gateway interface to configure LifeSize Gateway settings.
- **Operator**—User can monitor or disconnect calls but otherwise only has read-only access to the LifeSize Gateway interface.
- **Read-only**—User has read-only access to the LifeSize Gateway interface.

Adding Gateway Interface Users

In the Users tab of the Device section of the LifeSize Gateway interface, you can add LifeSize Gateway interface users.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Users** tab.
3. Click **Add** to add a new user.

   The Add User dialog box appears.
4. In the **User name** field, enter the user login name.
5. In the Access Level field, choose one of the following access levels: **Administrator**, **Operator** or **Read only**.
6. In the Password field, enter the password that the user uses to login to the LifeSize Gateway interface.
7. In the Confirm Password field, re-enter the password.
8. Click **Upload**.

Editing Gateway Interface Users

In the **Users** tab of the **Device** section of the LifeSize Gateway interface, you can edit LifeSize Gateway interface users.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Users** tab.
3. Select an existing user and click **Edit**.

   The Edit User dialog box appears.
4. In the **User name** field, edit the user user login name.
5. In the Access Level field, choose one of the following access levels: **Administrator**, **Operator** or **Read only**.
6. In the Password field, edit the password that the user uses to login to the LifeSize Gateway interface.
7. In the Confirm Password field, re-enter the password.
8. Click **Upload**.

Deleting Gateway Interface Users

In the **Users** tab of the **Device** section of the LifeSize Gateway interface, you can delete LifeSize Gateway interface users.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Users** tab.
3. Select a user and click **Delete**.

Viewing LED Information

In the **LED Monitoring** tab in the **Device** interface, you can monitor the status of all the LifeSize Gateway front and rear panel LED indicators. The LEDs are displayed in diagrams reproducing the layout of the LifeSize Gateway front and rear panels.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **LED Monitoring** tab.
3. Place the mouse cursor over the required LED in the **LED Monitoring** tab to view a description of that LED.

How to View General Info About the Gateway

- Viewing General Information About the Gateway on page 4
- Updating Your License on page 6
- Viewing Software Version Details on page 6
- Setting the Time and Date on the Gateway on page 6
- Setting the Gateway Location on page 7
- Resetting Default Device Basic Settings on page 8

Viewing General Information About the Gateway

In the **Basics** tab in the **Device** interface, you can view and configure general information about the hardware and software the LifeSize Gateway uses.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Basics** tab.

   Table 1-1 describes the elements that appear in the **Basics** tab.

Table 1-1 *Device Basic Tab Elements*

Field	Description
Device name	Identifies the model number of the device.
Location	User-configured description about the device. Click this field to type a new description, and then click **Upload** on the toolbar.
Serial number	The serial number that the factory assigned to the device.
License key	Your LifeSize license key for accessing LifeSize Gateway devices. Click the **Update** button to modify your LifeSize license key.
Hardware version	The version number of the current hardware configuration.
Software version	The first two digits of the version number of the software installed on the device. Click the **Details** button to view details of the versions of software components installed on the device.
Date/Time	The date and time that the LifeSize Gateway clock reports.

Related Topics

- Updating Your License on page 6
- Viewing Software Version Details on page 6
- Setting the Time and Date on the Gateway on page 6
- Setting the Gateway Location on page 7
- Resetting Default Device Basic Settings on page 8

Updating Your License

You use the **Basics** tab to update your LifeSize Gateway license.

Procedure

1. On the sidebar, click **Device**.
2. Click the **Basics** tab.
3. Click **Update**.

   The Licensing and Registration dialog box appears.
4. Access the LifeSize web site to register before requesting a new license key by clicking the **Click here to register at the web site** link, or by copying the URL that appears in the lower half of the screen into your browser.
5. Enter your new license key in the New license key field and click **Upload** to activate the new license key.

Viewing Software Version Details

You use the **Basics** tab to view expanded software version information.

Procedure

1. On the sidebar, click **Device**.
2. Click the **Basics** tab.
3. Locate the Software version field and click **Details**.

   The Version Details dialog box appears.

Setting the Time and Date on the Gateway

You use the **Basics** tab to choose how your LifeSize Gateway tracks the date and time.

Procedure

1. On the sidebar, click **Device**.
2. Click the **Basics** tab.

3 Locate the Date/Time field and click **Change**.

The Change Time dialog box appears. The date and time the LifeSize Gateway reports appear in the Set time to field.

4 In the Change field, select the unit of time that you want to change.

Note There is no unit to change AM and PM. This designation rolls automatically when the hour rolls past 12 backward or forward. Similarly, seconds roll minutes, minutes roll hours, hours roll days, and days roll months.

5 In the Set time to field, choose the up or down arrow to change that unit.

The unit you choose changes in the direction you choose: higher (up) or lower (down).

6 Repeat step 4 and 5 for as many units as you want to change.

7 On the toolbar, click **Upload**.

SETTING THE GATEWAY LOCATION

You can install the LifeSize Gateway anywhere on your network including at a remote site. On the **Basics** tab, you can describe the current location of the LifeSize Gateway.

Procedure

1 On the sidebar, click **Device**.

2 Click the **Basics** tab.

3 In the Location field, enter the location information about the LifeSize Gateway that you want to display.

The field displays up to 23 characters.

4 On the toolbar, click **Upload** to save to configuration memory.

Resetting Default Device Basic Settings

In the **Basics** tab, you can restore unit settings to factory defaults.

Procedure

1. On the sidebar, click **Device**.
2. Click the **Basics** tab.
3. Select the **Reset to default settings** check box.

Viewing Address Settings

In the **Addressing** tab, you can view address information for the LifeSize Gateway such as IP address informations, Domain Name Server (DNS) information and Ethernet port speed and duplex. Table 1-2 describes the elements that appear on the **Addressing** tab.

Table 1-2 *Addressing Tab Elements*

Field	Description
IP Address	
IP Address	The IP address assigned to the LifeSize Gateway.
Router IP	The address of the router that the LifeSize Gateway uses.
Subnet Mask	The subnet address that the LifeSize Gateway uses.
DNS	
DNS Server IP	The IP address of the Domain Name Server (DNS) that the LifeSize Gateway accesses.
Device DNS name	The device name of the Domain Name Server (DNS) that the LifeSize Gateway accesses (read-only).
Ethernet	
Port type	Displays information about the Ethernet connection (read-only).
Port settings	The Ethernet speed and duplex that the LifeSize Gateway uses.

Table 1-2 Addressing Tab Elements (continued)

Field	Description
MAC address	Displays the Mandatory Access Control (MAC) code assigned to the LifeSize Gateway (read-only).
Port status	Displays the actual Ethernet speed and duplex the LifeSize Gateway uses on the network (read-only).

Related Topics

- Changing Address Settings on page 9

Changing Address Settings

In the **Addressing** tab, you can change the following address information for the LifeSize Gateway—IP address information, DNS information and the Ethernet port speed and duplex.

Procedure

1. In the Administrator interface, on the sidebar, click **Device**.
2. Click the **Addressing** tab.
3. To change an IP address setting, do any of the following steps:
   - In the IP Address field, type the IP address you want to assign to the LifeSize Gateway.
   - In the Router IP field, type the IP address of the router you want the LifeSize Gateway to use.
   - In the Subnet Mask field, type the subnet mask you want the LifeSize Gateway to use.
4. In the DNS Server IP field, type the IP address of the DNS server that you want the LifeSize Gateway to use.
5. In the Port settings field, choose the Ethernet port and duplex speed value you want to set.
6. On the toolbar, click **Upload**.

Related Topics

- Viewing Address Settings on page 8

How to Configure Web Settings

- Changing the Administrator Interface Web Server Port on page 10
- Enabling HTTPS on page 10
- Managing Digital Certificates on page 11

Changing the Administrator Interface Web Server Port

Port 80 is the default Administrator interface web server port. For additional security, you can modify the web server port in the Web tab.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Web** tab.
3. In the Web server port field, enter the port number.
4. On the toolbar, click **Upload**.

Enabling HTTPS

Note HTTPS support is enabled when a certificate is installed or a certificate is self-signed.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the Web tab.
3. Check **Support Secure Communications (HTTPS)** to enable HTTPS support. Uncheck it to disable HTTPS.
4. Click **Upload**.

Logging into the Gateway when HTTPS is Enabled

Note When the Support Secure Communications (HTTPS) option is enabled, the LifeSize Gateway URL automatically appears as an https:// URL. When the Support Secure Communications (HTTPS) option is disabled, the URL appears as a regular http:// URL.

Procedure

1. In your browser type the URL of the LifeSize Gateway.
   If HTTPS is enabled, a Security Alert screen displays.
2. Click Yes to proceed and display the Administrator login screen. Click **No** to cancel the current operation.
3. Type a user name and password.
4. Click **Login**.

Managing Digital Certificates

The Certificate Management Wizard guides the administrator through the following digital certificate management processes:

- Generating a Certificate Request on page 11
- Deleting a Pending Certificate Request on page 12
- Loading a Certificate on page 13
- Removing a Certificate on page 13
- Renewing a Certificate on page 14
- Exporting a Signed Certificate on page 14
- Importing a Certificate on page 15

Note The tasks you can perform with the wizard depend on the certificate status. The status displays on the Welcome to the Web Server Certificate Wizard screen.

Generating a Certificate Request

You can generate a self-signed certificate or generate a request for an external certificate. The request for an external certificate must be sent to a Certificate Authority. The Certificate Authority will generate a certificate from the request.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Web** tab.
3. Click **Manage Certificate**.
   The Welcome to the Web Server Certificate Wizard screen appears.
4. Select **Create a new certificate request** and click **Next**.

5. To generate a certificate request using existing organization information, follow the procedure described at step 6.

   To generate a certificate request using new information, follow the procedure described at step 7.

6. Select **Using information from the existing certificate** and click **Next**.

   The Certificate Request Summary screen appears showing the existing organization and geographical information. Go to step 8.

7. Select **Using new information** and click **Next**.
   - Enter the required details in the Organization Information screen and click **Next**.
   - Enter the required details in the Geographical Information screen and click **Next**.
   - The Certificate Request Summary screen appears showing the configured organization and geographical information. Go to step 8.

8. Click **Next** to generate a certificate request.
9. Copy the generated request text to a file and send it to the certification authority, as described in Loading a Certificate on page 13.
10. Click **Finish**.

Deleting a Pending Certificate Request

You can delete a pending request for an external certificate which has not yet been loaded.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Web** tab.
3. Click **Manage Certificate**.

   The Welcome to the Web Server Certificate Wizard screen appears.

4. Select **Delete a pending request** and click **Next**.

   The Delete a Pending Request screen displays.

5. Click **Finish**.

Loading a Certificate

You load an external certificate that has been received from a certificate authority. The external certificate must match a pending request for it to be loaded properly.

Procedure

1. In the **Gateway Administrator** interface sidebar, click **Device**.
2. Click the **Web** tab.
3. Click **Manage Certificate**.

   The Welcome to the Web Server Certificate Wizard screen displays.
4. Select **Process the pending request and install the certificate** and click **Next.**

   The Process a Pending Request screen displays.

Removing a Certificate

You can remove a self-signed or an external certificate that has already been loaded.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Web** tab.
3. Select **Remove the current certificate** and click **Next**.

   The Certificate Summary screen displays.

Note Removing a certificate disables HTTPS support and causes the LifeSize Gateway to reset.

4. Select **Yes** and then **Finish** to remove the certificate,

   –or–

   Select **No** to cancel the operation.

Renewing a Certificate

Every certificate has an expiration date, after which it should be renewed. You can renew it using existing information or new information.

Procedure

1. In the **Gateway Administrator** interface sidebar, click **Device**.
2. Click the **Web** tab.
3. Click **Manage Certificate**.

   The Welcome to the Web Server Certificate Wizard screen displays.
4. To renew a certificate request using existing organization information, follow the procedure described at step 5.

   To renew a certificate request using new information, follow the procedure described at step 6.
5. Select **Using information from the existing certificate** and click **Next**.

   The Certificate Request Summary screen appears showing the existing organization and geographical information. Go to step 7.
6. Select **Using new information** and click **Next**.
   - Enter the required details in the Organization Information screen and click **Next**.
   - Enter the required details in the Geographical Information screen and click **Next**.
   - The Certificate Request Summary screen appears showing the configured organization and geographical information. Go to step 7.
7. Click **Next** to generate a certificate request.
8. Copy the generated request text to a file and send it to the certification authority, as described at Loading a Certificate on page 13.
9. Click **Finish**.

Exporting a Signed Certificate

Exporting a signed certificate sends the certificate to a text file and the key material (known as the “keyblob”) to the same text file.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Web** tab.

3 Click **Export Certificate**.

4 The **Certificate Export** screen displays.

5 Enter a password of up to 16 characters, and click **OK**.

The **File Download** screen displays.

6 Click **Save** and save the file to the directory where you wish to save the certificate.

The certificate is saved as *certific.csr*.

The Download Complete screen displays.

Importing a Certificate

You can import a certificate from a saved location.

Note The Administrator is responsible for the passwords. The system does not save import or export passwords.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Device**.

2 Click the **Web** tab.

3 Click **Import Certificate**.

The **Import a Certificate File** dialog box displays.

4 Enter the certificate name.

–or–

Click **Browse** to allocate the certificate to import.

The Choose File dialog box displays. Double-click the certificate that you want to import.

5 Enter the same password that you used in the export certificate.

6 Click **Import** to import and install the new certificate.

CONFIGURING SECURITY

You can configure the access that external programs have to the LifeSize Gateway. These external programs include Telnet, Simple Network Management Protocol (SNMP), File Transfer Protocol (FTP), and ICMP (Internet Control Message Protocol, or ping).

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Click the **Security** tab.
3. From the Security mode field, choose the access level you want the LifeSize Gateway to support:
   - **Standard**—Enables SNMP, Telnet, FTP, and ICMP to access the LifeSize Gateway.
   - **High (no Telnet or Ftp)**—Enables access to the LifeSize Gateway only through SNMP and ICMP.
   - **Maximum (no Telnet, ftp, SNMP and ICMP)**—Disallows external programs to access the LifeSize Gateway.
4. In the SNMP Read community and Write community fields, enter default strings used to enable SNMP communication between the LifeSize Gateway and a external application.
5. On the toolbar, click **Upload**.

ABOUT THE GATEWAY ADMINISTRATOR INTERFACE

In the LifeSize Gateway Administrator interface, you can view LifeSize Gateway resource information, define the LifeSize Gateway mode of operation, configure and edit LifeSize Gateway services, configure physical line settings, monitor and disconnect calls, view reported alert events, and view debugging details. Table 1-3 explains the tabs that appear in the LifeSize Gateway Administrator interface.

Note There may be slight variations between the configuration options described in this section and the options appearing in the LifeSize Gateway you are working with.

Table 1-3 *Gateway Administrator Interface Tabs*

Tab Name	Description
Status	Displays LifeSize Gateway resource usage information, number of calls currently in progress, and servicing gatekeeper details.
Settings	Defines the mode of LifeSize Gateway operation.
Services	Defines services that the LifeSize Gateway provides.
Port	Defines physical line settings for that particular PRI or serial port.
Calls	Displays details on current calls and disconnect calls.
Event Log	Displays reported alert events.
Statistics	Displays specific system information such as call traces and debugging details.
Maintenance	Provides access to maintenance mode, in which you can prevent the LifeSize Gateway from accepting new calls, and perform software upgrades and other maintenance work.

Note The Gatekeeper control on the right side of the toolbar provides a link to the Administrator web page of the LifeSize Gatekeeper with which the LifeSize Gateway registers. Enter the IP address of the LifeSize Gatekeeper with which the LifeSize Gateway registers in the Specify Gatekeeper address field in the IP Connectivity section of the Settings tab when the IP connectivity mode option is set to Using gatekeeper. For more information, see Configuring the Gateway to Register With a Gatekeeper on page 21.

How to Obtain Status About the Gateway

About the Status Tab

The Status tab displays the current rate of use of LifeSize Gateway resources, the total number of current calls, and servicing details. Table 1-4 lists the information in the Status tab.

Table 1-4 *Status Tab Sections*

Section Name	Description
General	■ **Status**—Indicates the operational status of the LifeSize Gateway: OK or Failure. In cases of failure, a text description of the problem appears. For example, "PRI connection, remote side: loss of frame alignment."
Gateway Resource Meter	■ **Overall Gateway usage (%)**—Displays the rate of LifeSize Gateway resources currently in use. ■ **CPU usage (%)**—Displays the rate of CPU resources currently in use. ■ **Audio transcoder usage (%)**—Displays the rate of audio transcoding resources currently used for video calls. ■ **ISDN B channels in use**—Displays the total number of Integrated Services Digital Network (ISDN) B channels currently in use (Gateway-PRI).
Calls	■ **Number of calls**—Displays the total number of calls currently in progress in the LifeSize Gateway.
Servicing Gatekeeper	■ **IP address**—Displays the IP address of the gatekeeper to which the LifeSize Gateway is currently registered. ■ **Host name**—Displays the name of the servicing gatekeeper.

Related Topics

- Viewing B Channel Status
- Refreshing Gateway Status

Viewing B Channel Status

Note This section applies only to Gateway-PRI.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Status** tab (if not already selected).
3. Click **Details**.

   The **Details** dialog box appears, displaying the following information:

   - **Port 1 and Port 2**—Displays the status of each of the B channels and of the D channel for each of the PRI ports.
   - **Disabled**—Displays the number of disabled B channels for each port.
   - **Used**—Displays the number of B channels currently in use for each port.
   - **Free**—Displays the number of B channels currently available for each port.
   - **D channel**—Displays the number of D channels for each port.

Refreshing Gateway Status

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Status** tab (if not already selected).
3. On the toolbar, click **Refresh**.

   The information that appears in the Status tab is now refreshed.

How to Configure Gateway Settings

- About the Settings Tab on page 20
- Configuring Basic Gateway Settings on page 20
- Configuring IP Connectivity Settings on page 21
- Configuring IVR Settings on page 28
- Configuring Outgoing Call Delimiters on page 30
- About Encoding/Decoding Protocols on page 31
- Configuring Encoding/Decoding Protocols on page 33
- Configuring ISDN Channel Bonding Settings for Downspeeding on page 34
- Configuring Quality of Service Settings on page 35
- Configuring Alert Indications on page 37
- Configuring Gateway Resources for Calls on page 43
- Configuring Gateway Encryption on page 44
- Configuring Advanced Settings on page 46
- About DTMF Settings on page 50
- Configuring Advanced Commands on page 54

About the Settings Tab

In the Settings tab of the LifeSize Gateway interface, you can configure gatekeeper and Interactive Voice Response (IVR) addressing, the type of connection to the IP network, dialing delimiters, media encoding/decoding protocols, Quality of Service levels, which events cause the LifeSize Gateway to send SNMP traps, LifeSize Gateway resource levels for T.120 enabled and audio transcoded video calls, security settings, and advanced settings such as load balancing support.

Configuring Basic Gateway Settings

In the Basics section of the Settings tab, you can set the LifeSize Gateway identifier, which is the name that the LifeSize Gateway uses when registering to a gatekeeper and when dialing to endpoints.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.

3 Click **Basics** (if not already selected).

4 In the Gateway Identifier field, enter the LifeSize Gateway identifier.

Configuring IP Connectivity Settings

In the IP Connectivity section of the Settings tab, you can select the IP connectivity mode in which the LifeSize Gateway operates, set the address of the gatekeeper with which the LifeSize Gateway registers, and define the way in which the LifeSize Gateway interacts with the gatekeeper.

You can configure the IP connectivity mode in the following two ways:

- **Using a gatekeeper**—The LifeSize Gateway registers with a gatekeeper and uses the gatekeeper for every call (see Configuring the Gateway to Register With a Gatekeeper on page 21).
- **Peer-to-Peer**—The LifeSize Gateway connects directly to a peer device without the need for a gatekeeper (see Configuring the Gateway for Peer-to-Peer IP Connectivity on page 24).

Caution Changing the IP connectivity mode setting causes the LifeSize Gateway to reset.

Configuring the Gateway to Register With a Gatekeeper

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).

2 Click the **Settings** tab.

3 Click **IP Connectivity**.

4 In the IP connectivity mode field, choose **Using gatekeeper**.

5 Make one of the these selections:

- Select the Gatekeeper auto discover and register option for the LifeSize Gateway to automatically search for and attempt to register to a gatekeeper.
- Select the Specify Gatekeeper address option to specify the gatekeeper to which the LifeSize Gateway registers.

6. In the Gatekeeper address field, do one of the following:
   - Enter the IP address of the gatekeeper to which the LifeSize Gateway registers.

     —or—
   - Click **Browse**.

     The Discovered Gatekeepers dialog box appears, displaying all gatekeepers located on the same network segment as the LifeSize Gateway.
   - Select a discovered gatekeeper.
   - Click **OK**.
7. In the Gatekeeper port field, enter the port number of the gatekeeper. The default setting is 1719.
8. Select the **Registration refresh every n seconds** check box to set the Time To Live interval (in seconds) that determines how often the LifeSize Gateway sends a “keep alive” message to the gatekeeper to ensure that the LifeSize Gateway registration is listed with the gatekeeper and does not expire. Enter a value in seconds in the field.
9. In the Gateway registration mode field, choose the method of registration of services with the gatekeeper:
   - **Version 1**—For gatekeepers that support H.323 version 1.
   - **Version 2**—For gatekeepers that support H.323 version 2 or later.
10. (Gateway-PRIs only) Select the **Unregister from Gatekeeper on ISDN connection failure** check box to force the LifeSize Gateway to unregister from its gatekeeper when both ISDN D-channel connections are no longer active. The gatekeeper is forced to send new IP-to-ISDN calls through a different LifeSize Gateway, thus ensuring high call completion rates. The LifeSize Gateway re-registers to the gatekeeper when the ISDN connected is restored.
11. (Serial LifeSize Gateways only) Select the **Unregister from Gatekeeper when no cable is connected** check box to force the LifeSize Gateway to unregister from its gatekeeper when no cable connection is found. When at least one cable is connected to the LifeSize Gateway, the LifeSize Gateway can register to its gatekeeper. If no cables are connected to the LifeSize Gateway, the LifeSize Gateway is automatically unregistered from the gatekeeper (see Configuring Properties of Serial Ports on page 65 for more information).

12 Select the **Send load balancing messages (RAI)** check box to enable the sending of RAI messages to the gatekeeper for the purpose of load balancing on the network. If you select this option, perform step 13 and step 14.

Gatekeepers can perform load balancing on the network using feedback from the LifeSize Gateway in the form of Resource Available Indication (RAI) messages that inform the gatekeeper of LifeSize Gateway resource availability. If the LifeSize Gateway is unavailable, the gatekeeper performs line hunting operations to route the call to an alternative gateway.

When you set the LifeSize Gateway for RAI/RAC, it sends periodic RAI messages that inform the gatekeeper of the current resource availability in the LifeSize Gateway. The gatekeeper responds with Resource Available Confirmation (RAC) messages to acknowledge receipt of the RAI messages. In step 13 and step 14, you can configure the upper and lower threshold for triggering RAI messages according to resource availability in the LifeSize Gateway.

13 In the Send ‘busy’ when load is more than field, enter the upper threshold for LifeSize Gateway resource utilization as a percentage of total resources. When resource use is greater than the threshold, the LifeSize Gateway sends the gatekeeper a ‘busy’ RAI message, indicating to the gatekeeper that it should stop routing calls to this LifeSize Gateway.

14 In the Send ‘free’ when load is more than field, enter the lower threshold for LifeSize Gateway resource utilization as a percentage of total resources. When resource use is less than the threshold, the LifeSize Gateway sends the gatekeeper a ‘free’ RAI message, indicating to the gatekeeper that it can resume routing calls to this LifeSize Gateway.

Configuring the Gateway for Peer-to-Peer IP Connectivity

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **IP Connectivity**.
4. In the IP connectivity mode field, choose **Peer-to-Peer**.

Note Changing this setting causes the LifeSize Gateway to reset.

5. In the Peer hunting mode field, choose one of these options:
   - **Always start from first peer**—The LifeSize Gateway attempts to connect a call to the first peer device on the **Peer list** section. If the call fails due to one of the H.323 call disconnect reasons (see About Peer-to-Peer H.323 Call Disconnect Reasons on page 27), the LifeSize Gateway tries each peer device in the Peer list section in order until the call is successfully connected. If the LifeSize Gateway fails to connect the call after trying all the peer devices on the list, it rejects the call.
   - **Always start from last successful peer**—The LifeSize Gateway attempts to connect a call to the last peer device in the Peer list section with which a call was successfully established. An arrow in the Peer list section indicates with which of the peer devices a call was last connected successfully. If the call fails due to one of the H.323 call disconnect reasons (see About Peer-to-Peer H.323 Call Disconnect Reasons on page 27), the LifeSize Gateway tries each peer device in the Peer list section in order until the call is successfully connected. The arrow moves to the peer device with which the call connection is successful. If the LifeSize Gateway fails to connect the call after trying all the peer devices on the list, it rejects the call and the arrow indicates with which peer device a call was last connected successfully. This is the default setting.

- **Round Robin**—As for the Always start from last successful peer setting, except that the arrow advances to the next peer device in the Peer list section even if the call connection succeeds.

Note The peer hunting process starts when any of the following events occur: the LifeSize Gateway fails to establish a Transmission Control Protocol (TCP) connection to the specified peer device after a timeout; the LifeSize Gateway receives a "Release Complete" message from a peer device with a "No Resources" call rejection reason, or one of the other reasons that the Peer-to-Peer disconnect reason add advanced command specifies; or the LifeSize Gateway establishes a TCP connection to the specified peer device, but does not receive a valid H.323 message from the peer device after a timeout.

---

6 In the **Peer list** section, you can configure peer devices currently configured to work with the LifeSize Gateway. The Peer list section displays all configured peer devices in a table with these columns:

- **Peer #**—The sequential number of the peer in the list.
- **Description**—The description of the peer device.
- **IP Address**—The peer IP address.
- **IP Port**—The peer IP port number.
- **Calls**—Displays "Yes" or "No" to indicate whether or not there are currently any active calls between the peer and LifeSize Gateway.

To change the order of peer devices used in peer hunting, select a peer device and click the up or down arrow button to change its order.

To add or edit a peer device, click **Add** or select the peer device and click **Edit**. Perform the following steps in the Add peer or Edit peer dialog box:

- In the IP Address field, enter or edit the peer IP address.

Note Two peers cannot have the same IP address or host name/Uniform Resource Locator (URL).

- In the IP Port field, enter or edit the peer IP port number.
- In the Description field, enter or edit the description of the peer.

- Click **Upload**.

Note You cannot add a single peer to the Peer list section more than once.

To delete a peer device, select the peer device and click **Delete**. Deleting a peer does not cause its active calls to disconnect, but no new calls are routed to the deleted peer.

Note The peer hunting process stops when one of the peer devices accepts the call or when the call is rejected with a disconnect reason. When a LifeSize Gateway has scanned the Peer list section and still cannot connect a call, the following rules apply: if at least one of the peers rejected the call due to capacity overload, the call rejection reason (towards the call originator) is "No Resources"; in all other cases, the call rejection reason is "Unreachable Destination."

7. In the Peer hunting timeout (sec) field, enter the length of time (between 1 and 10 seconds) for which the LifeSize Gateway waits for a Transmission Control Protocol (TCP) response from each peer device contacted. The default value is 5 seconds.
8. Select the **Accept calls from defined peers only** check box if you want the LifeSize Gateway to reject incoming calls from IP-side entities not defined in the peer list. If deselected, the LifeSize Gateway allows incoming calls from IP-side entities not defined in the **Peer list** section.
9. (Gateway-PRI only) In the Reject calls from peer devices when less than n B channels are free field, enter the lower capacity threshold for rejecting calls from H.323 peer devices. The default setting is 6.

About Peer-to-Peer H.323 Call Disconnect Reasons

Table 1-5 lists the reasons for which the LifeSize Gateway peer-to-peer hunting module might disconnect a call.

Table 1-5 *Peer-to-Peer H.323 Call Disconnect Reasons*

Number	H.323 Call Disconnect Reason
1	There is no available bandwidth.
2	Gatekeeper resources have been exhausted.
3	The destination cannot be reached.
4	The destination rejected the transaction request.
5	Version is not compatible.
6	No permission to perform requested transaction.
7	The destination gatekeeper cannot be reached.
8	Gateway resources have been exhausted.
9	Destination address is not formatted correctly.
10	LAN crowding has caused the call to be dropped.
11	The destination is busy and cannot respond to the call transaction.
12	Undefined reason for transaction failure.
13	Call should be routed to a gatekeeper.
14	Call should be forwarded.
15	Call should be routed to an MC.
16	Call deflection has occurred.
17	Access denied.
18	The called party is not registered at the destination.
19	The calling party is not registered.

Table 1-5 Peer-to-Peer H.323 Call Disconnect Reasons (continued)

Number	H.323 Call Disconnect Reason
20	The connection failed and a new one should be made.
21	The called party has no H.245 capabilities.
22	Facility message sends conference list choice.
23	Request to establish H.245 connection.
24	An indication from an endpoint or a gatekeeper to send a new set of tokens in the *tokens* and/or *cryptoTokens* field of the Facility message.
25	Indicates that the purpose of the message is to update feature set information that was previously sent in the Facility message.
26	Indicates that the purpose of the message is to forward elements of another message, if that message cannot be sent.
27	Indicates that the purpose of the message is to transport higher-layer information.

CONFIGURING IVR SETTINGS

In the IVR section of the Settings tab, you can configure the LifeSize Gateway to route calls using an Interactive Voice Response (IVR) system.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click the **IVR** button.

4 Select the type of IVR functionality:

- **Use internal IVR**—Enables the LifeSize Gateway IVR functionality so that incoming calls can route to an endpoint on the IP network. Follow step 6 to step 9.

Note The IVR must be enabled for the port that supports IVR.

- **Use external IVR**—Select to set the IP address and port number for an IVR system in another device. Follow step 10 and step 11.

5 Select the **IVR registers with gatekeeper** check box to enable the internal IVR to register with the gatekeeper.

6 In the **IVR registration name** field, type the IVR registration alias used with the gatekeeper.

7 Deselect the **Transfer to Operator when '*' pressed during IVR** check box to ignore the IVR operator digit (which is currently "*") and make it part of the dial string.

8 In the **IVR Operator Extension** field, set the E.164 number of an endpoint that is registered with the gatekeeper to function as an IVR operator for incoming calls. To do this, type the same number for the IVR operator extension for each of the IP terminals that you want to include in the single number access. You can also use an ISDN endpoint as the IVR operator extension. To do this, define the IVR operator extension using the format <LifeSize Gateway service><ISDN number>.

9 Select or deselect the **Return to main IVR menu if IP extension # is unreachable** check box to enable or disable an IVR retry.

Note This check box is selected by default except after a software upgrade, in which case it is deselected.

Regardless of whether or not this check box is selected, if a call cannot be connected, the user is played an IVR message that states the reason why the call cannot be connected, followed by instructions as to what to do next.

10 In the IVR address field, enter the IP address for the IVR system on the external device.

11 In the Port field, enter the port number for the IVR system on the external device. The default port setting is 1620.

Configuring Outgoing Call Delimiters

In the Delimiters section of the Settings tab, you can configure outgoing call delimiter characters.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if it is not already selected).

2 Click the **Settings** tab.

3 Click the **Delimiters** button.

4 In the Second number delimiter field, enter the character used as a second number delimiter for dialing more than one ISDN number in setting up a 2B call. You can use the pound sign (#), asterisk (*) or comma (,) as a delimiter in outgoing calls only. Not available in Gateway-Serial.

5 In the TCS4 extension delimiter field, enter the character used as an extension number for TCS4 outgoing IP-to-ISDN call routing. You can use the pound sign (#), asterisk (*) or comma (,) as a delimiter in outgoing calls only. This setting does not apply for voice calls.

Note Since the comma cannot be used in the Party number field of the LifeSize Multipoint Conference Control interface, we recommend that you do not use the comma as a second number delimiter or as a TCS4 extension delimiter.

About Encoding/Decoding Protocols

A number of video conferencing terminal applications require the G.722 and G.722.1 audio compression codecs to provide high quality voice communications. The G.722 and G.722.1 formats, using a digital sampling rate of 7 KHz, provide higher quality voice sampling with a greater dynamic range. The LifeSize Gateway does not transcode G.722 or G.722.1, but supports them transparently. Since the G.722 codec is of a much higher audio quality than other codecs and requires higher bandwidths, the LifeSize Gateway supports G.722 and G.722.1 at the following call bit rates:

- G.722 is supported in calls at 224, 256, 336, 384, 448, 512 Kbps (all LifeSize Gateways) and 768, 1472 and 1920 Kbps.
- G.722.1 is supported in calls at 64, 2B, and 128 Kbps.

Both endpoints in a call must support G.722 and G.722.1 audio codecs.

About Audio Transcoding

The Gateway-PRI supports audio transcoding through the Audio Transcoder Module (TCM). The Gateway-Serial supports audio transcoding through on-board Digital Signal Processing (DSP).

The TCM is a PCI mezzanine card (PMC) that implements Digital Signal Processing (DSP). The TCM has a processing capacity of up to 20 channels for audio transcoding in video calls.

The LifeSize Gateway TCM can perform audio transcoding between the following types of audio protocols:

- G.711 (ISDN) to G.723.1 (IP)
- G.723.1 (IP) to G.711 (ISDN)
- G.728 (ISDN) to G.711 (IP)
- G.711 (IP) to G.728 (ISDN)

Note When your unit includes both a LifeSize Gateway and a LifeSize Multipoint, G.728 transcoding is supported on the LifeSize Multipoint only.

Each audio codec differs in the audio quality, compression, and bit rates that it provides. The G.711 codec provides toll quality audio at 64 Kbps, the G.728 codec provides near toll quality audio at 16 Kbps, and the G.723.1 codec provides voice quality audio at 5.3 or 6.4 Kbps.

Endpoints on the ISDN network usually support the G.711 and G.728 codecs. Endpoints on IP networks support G.711 and G.723.1 codecs. By performing transcoding between these audio protocols, the LifeSize Gateway can support communication between endpoints with codecs that are incompatible with each other.

Audio transcoding can also optimize the audio bandwidth usage either on the IP network (G.723.1 < > G.711) or on the ISDN network (G.728 < > G.711). Transcoding is particularly useful for ISDN codecs, where bandwidth can be limited to 128 Kbps for a video call. For example, when transcoding between G.728 and G.711 takes place, the audio bandwidth usage is compressed to 16 Kbps. This provides an additional 40 Kbps of bandwidth to the existing video bit rate on the ISDN network, contributing to improved video quality.

Note The LifeSize Gateway automatically performs A-Law G.711-to-µ-Law G.711 translation between the IP and ISDN sides if needed.

You can configure the LifeSize Gateway to prioritize the transcoding, giving preference to a particular codec that is applied to calls, thus optimizing the resource allocation utilized by each call.

About T.120 Data Collaboration Support

The LifeSize Gateway provides full end-to-end support for T.120 data collaboration sessions, provided all terminals support the T.120 standard in their conferencing applications. In video calls with data transfer, the LifeSize Gateway accepts whatever bandwidth the ISDN connection defines for the data and dynamically adjusts the outgoing bandwidth used for data by using the MLP, HMLP and VarMLP formats.

If transcoding or T.120 capabilities are required, the LifeSize Gateway has to reserve resources for these. The LifeSize Gateway can differentiate between those calls that support T.120 and those that do not. When receiving calls, the LifeSize Gateway can check whether you are reserving resources for transcoding or for T.120 capabilities.

The LifeSize Gateway enables the user to determine the trade-off between the number of non-T.120 calls that the LifeSize Gateway can support and the number of calls sent with T.120 capabilities. The total number of calls that the LifeSize Gateway can support is accordingly reduced by this reallocation of resources.

The H.320 standard defines space allocation within a call. The H.320 standard defines the logic for bit rate allocation among audio, video and data channels in the context of the overall bit rate of a call. If you work with T.120, reallocation of bandwidth is always at the expense of available video resources. The

requirements of the H.320 standard govern this reallocation—it is not configured in the LifeSize Gateway. The LifeSize Gateway simply decides whether or not to send T.120 capabilities. You configure T.120 capabilities in the Advanced section of the LifeSize Gateway interface Settings tab.

Configuring Encoding/Decoding Protocols

In the Media Modes section of the Settings tab, you can configure and prioritize encoding and decoding protocols.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if it is not already selected).
2. Click the **Settings** tab.
3. Click **Media Modes**.
4. In the Transcoding priority field, choose the priority that determines the order of requested audio transcoding or choose **Disable** to disable audio transcoding priority.

Note When your unit includes both a LifeSize Gateway and a LifeSize Multipoint, G.728 transcoding is supported on the LifeSize Multipoint only.

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5. You can configure the following audio codec settings:
   - Select the **Enable G.722** check box to enable transparent support for the G.722 audio codec.
   - Select the **Enable G.722.1** check box to enable transparent support for the G.722.1 audio codec.
   - Select the **Enable G.728** check box to enable transparent support for the G.728 audio codec.
6. You can configure the following video codec settings:
   - Select the **Enable H.263** check box to enable transparent support for the H.263 video codec.
   - Select the **Enable H.263+** check box to enable transparent support for the H.263+ video codec.
   - Select the **Enable H.264** check box to enable transparent support for the H.264 video codec.

7 You can configure the following data settings:

- Select the **Enable T.120** check box to enable transparent support for T.120 capabilities.
- Select the **Enable FECC** check box to enable transparent support for Far End Camera Control (FECC) capabilities.

Configuring ISDN Channel Bonding Settings for Downspeeding

In the Bonding section of the Settings tab, you can configure ISDN channel bonding parameters that affect downspeeding functionality.

Note The **Bonding** section is not available in Gateway-Serial.

Downspeeding is the ability to complete and maintain a call when ISDN conditions are bad. In downspeeding, call capabilities are automatically renegotiated when a call fails. Downspeeding contributes to a higher percentage of call completion on the network. The LifeSize Gateway supports downspeeding at call setup and in mid-call.

With downspeeding, when connection problems occur at call setup, the LifeSize Gateway attempts to connect a call at a lower bit rate than that requested. Administrators can configure the LifeSize Gateway to attempt to connect a video call at a specified minimum bit rate, or to attempt to connect the call as a voice call.

In downspeeding, when connection problems occur in mid-call, the LifeSize Gateway attempts to connect a video call at the specified lower bit rate. When downspeeding is complete and the call is connected at the specified lower bit rate, the LifeSize Gateway notifies the Internet Protocol (IP) endpoint of the new call rate.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2 Click the **Settings** tab.
3 Click the **Bonding** button.
4 Select the **Enable bonding** check box to enable ISDN bonding support.
5 In the Maximum B channels for bonded call field, choose the maximum number of B channels—3, 4, 5, 6, 8, 12, 23 or 30—that you want to

allow for a single bonded call. The default setting for Gateway-PRIs is 30.

When the number of B channels required to process a bonded call exceeds the number specified in this field, the LifeSize Gateway performs downspeeding as shown in Table 1-6.

6 In the For bonded calls, allow downspeeding down to n B channels field, choose the minimum number of B channels that must be available before the LifeSize Gateway attempts to reconnect a video call.

Table 1-6 *Downspeeding Policy Operation*

Call Direction	Downspeed Advanced Command Parameter	If Call B Channels Exceed the Maximum:
LAN (IP) to WAN (ISDN)	enable (default)	Gateway tries to call at the maximum number of B channels
LAN (IP) to WAN (ISDN)	disable	Call disconnects
WAN (ISDN) to LAN (IP)	enable (default)	Call disconnects
WAN (ISDN) to LAN (IP)	disabled	Call disconnects.

CONFIGURING QUALITY OF SERVICE SETTINGS

You can assign a Quality of Service (QoS) priority level to video and voice calls using either pre-configured system settings or by creating your own settings. Quality of Service settings involve configuring the LifeSize Gateway to add a Quality of Service (QoS) DiffServ Code Point value in the IP header of outbound packets. Routers on the network that support QoS can give preferential treatment for bandwidth, latency and jitter to such coded packets and facilitate the efficient transmission of packets. You can set QoS parameters on the LifeSize Gateway for voice calls, video calls or both.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Quality of Service**.
4. In the Quality of service support field, select one of the following option buttons:
   - **None**—Select to disable quality of service support.
   - **Default** (recommended)—Select to assign the default DiffServ Code Point value for each media type.
   - **Custom**—Select to assign your own DiffServ Code Point value for each media type. You can configure the following additional settings:
     - In the Control Priority (0-63) field, enter a whole number from 0 to 63 to set the DiffServ Code Point value of signaling packets that the Gateway sends out. The default value is 26.
     - In the Video Calls section Voice Priority (0-63) field, enter a whole number from 0 to 63 to set the DiffServ Code Point value of voice packets that the Gateway sends out. The default value is 46.
     - In the Video Priority (0-63) field, enter a whole number from 0 to 63 to set the DiffServ Code Point value of video packets that the Gateway sends out. The default value is 34.
     - In the Data Priority (0-63) field, enter a whole number from 0 to 63 to set the DiffServ Code Point value of data packets that the Gateway sends out. The default value is 26.
     - (Gateway-PRIs only) In the Voice Calls section Voice Priority (0-63) field, enter a whole number from 0 to 63 to set the DiffServ Code Point value of voice packets that the Gateway sends out. The default value is 46.

Note You can click **Restore Defaults** to restore all default settings.

CONFIGURING ALERT INDICATIONS

In the Alert Indications section of the Settings tab, you can select which events trigger Simple Network Management Protocol (SNMP) traps. You can also define multiple SNMP servers to which the LifeSize Gateway sends the SNMP traps.

Note The LifeSize Gateway supports traps in the SNMPv1 format.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Alert Indications**.
4. In the Events section, select events in the Disabled events field and click **Add** to select an event to monitor. Or, select an event in the Enabled events field and click **Remove** to remove that event from monitoring.
5. Select the Send SNMP Traps check box to configure the IP address of the SNMP server to which the LifeSize Gateway sends SNMP trap notifications of the events selected in the Enabled events field. You can configure up to three different SNMP trap servers.
6. In the Trap server IP and Port fields, enter the IP address and port number for each SNMP server to which you want the LifeSize Gateway to send SNMP trap notifications. To remove an SNMP server, set the SNMP server IP address to 0.0.0.0 and click **Upload**.

Related Topics

- Gateway Event Types on page 38
- Trap Severity Enumeration on page 42

Gateway Event Types

Table 1-7 lists proprietary LifeSize SNMP trap event types for the Gateway-PRI, as detailed in the RvTrapEventType textual convention.

Table 1-8 lists SNMP trap event types for the Gateway-Serial, as detailed in the **RvTrapEventType** textual convention.

Note In certain cases, after a problem that caused a trap to be sent has been solved, an identical clearing trap is sent to indicate that the problem has been solved. The severity of the clearing trap is always 0. The trap OID and the RvTrapEventType value of the clearing trap are identical to those of the original trap sent when the problem occurred. The sending of a clearing trap is indicated by a severity level of "Clear."

Table 1-7 *Gateway-PRI SNMP Trap Event Types*

Event Type	Trap is sent when:	State	Severity
RAI status	A change in RAI status occurs.	TRUE	Warning
		FALSE	Clear
Bad video	Corrupt or empty video packets are present in the LifeSize Gateway. Includes the ID number of the call during which the event occurs.	TRUE	Minor
		FALSE	Clear
Power-up	The LifeSize Gateway has started to operate.		Information
Power-down	The LifeSize Gateway is shutting down.		Information
Gatekeeper registration state change	A change occurs in the registration status of the LifeSize Gateway.	TRUE	Clear
		FALSE	Minor
Loss of ISDN	A state change occurs for each enabled ISDN line.	TRUE	Critical
		FALSE	Clear
Loss of Ethernet	The network returns after going down. Indicates the time at which the network was restored.	TRUE	Critical
		FALSE	Clear

Table 1-7 *Gateway-PRI SNMP Trap Event Types (continued)*

Event Type	Trap is sent when:	State	Severity
Max resource meter	A call could not be established because of a lack of one of the following resources—CPU, audio transcoder, DTMF detector or T.120 resources.		Warning
Network problem	A problem occurs on the network.	TRUE	Major
		FALSE	Clear
Card extract/Hot Swap	A card has been removed from the LifeSize chassis under power or inserted into the chassis under power, or the when the LifeSize Gateway enters maintenance mode.	TRUE	Critical
		FALSE	Clear
Abnormal disconnect	A call has disconnected for a reason other than normal, busy or no answer.		Warning
ISDN downspeed	ISDN downspeeding to a lower rate is taking place.		Warning
Corrupt IVR messages on host	Corrupt IVR files are present in the LifeSize Gateway.		Warning
Corrupt WEB data	Corrupt web files are present in the LifeSize Gateway.		Major
ISDN rollover activated	The LifeSize Gateway notifies the PSTN switch that the LifeSize Gateway cannot accept any further calls. ISDN rollover requires support by the PSTN switch application and presumes the availability of a pool of stacked LifeSize Gateways across the managed network. You can enable ISDN Rollover only after you set the LifeSize Gateway to work with the T1 interface.		Major
Call to peer rejected - trying alternate	A call to a peer has been rejected and the LifeSize Gateway is searching for an alternate peer.		Warning

Table 1-7 *Gateway-PRI SNMP Trap Event Types (continued)*

Event Type	Trap is sent when:	State	Severity
Call from peer rejected due to capacity	A call from a peer has been rejected because the LifeSize Gateway does not have enough resources available.		Warning
Call to peer rejected by all listed peers	A call to a peer has been rejected by all listed peers.		Major
Call to peer failed - peer list empty	A call to a peer has failed because the peer list is empty.		Major
Incompatible sw version install	An attempt to burn a version of the LifeSize Gateway software onto incompatible hardware occurs.		Warning
Call from non-peer H.323 entity rejected	The LifeSize Gateway has rejected an incoming IP call because the source does not appear in the peer list.		Warning

Table 1-8 *Gateway-Serial SNMP Trap Event Types*

Event Type	Trap is sent when ...	State	Severity
RAI status	A change in RAI status occurs.	TRUE	Warning
		FALSE	Clear
Bad video	Corrupt or empty video packets are present in the LifeSize Gateway. Includes the ID number of the call during which the event occurs.	TRUE	Minor
		FALSE	Clear
Power-up	The LifeSize Gateway has started to operate.		Information
Power-down	The LifeSize Gateway is shutting down.		Information
Gatekeeper registration state change	A change occurs in the registration status of the LifeSize Gateway.	TRUE	Clear
		FALSE	Minor

Table 1-8 *Gateway-Serial SNMP Trap Event Types (continued)*

Event Type	Trap is sent when ...	State	Severity
Loss of Ethernet	The network returns after going down. Indicates the time at which the network was restored.	TRUE	Critical
		FALSE	Clear
Max resource meter	A call could not be established because of a lack of one of the following resources—CPU, audio transcoder, DTMF detector or T.120 resources.		Warning
Network problem	A problem occurs on the network.	TRUE	Major
		FALSE	Clear
Card extract/Hot Swap	A card has been removed from the LifeSize chassis under power or inserted into the chassis under power, or the when the LifeSize Gateway enters maintenance mode.	TRUE	Critical
		FALSE	Clear
Abnormal disconnect	A call has disconnected for a reason other than normal, busy or no answer.		Warning
Corrupt IVR messages on host	Corrupt IVR files are present in the LifeSize Gateway.		Warning
Corrupt WEB data	Corrupt web files are present in the LifeSize Gateway.		Major
Call to peer rejected - trying alternate	A call to a peer has been rejected and the LifeSize Gateway is searching for an alternate peer.		Warning
Call from peer rejected due to capacity	A call from a peer has been rejected because the LifeSize Gateway does not have enough resources available.		Warning
Call to peer rejected by all listed peers	A call to a peer has been rejected by all listed peers.		Major
Call to peer failed - peer list empty	A call to a peer has failed because the peer list is empty.		Major

Table 1-8 Gateway-Serial SNMP Trap Event Types (continued)

Event Type	Trap is sent when ...	State	Severity
Incompatible sw version install	An attempt to burn a version of the LifeSize Gateway software onto incompatible hardware occurs.		Warning
Call from non-peer H.323 entity rejected	The LifeSize Gateway has rejected an incoming IP call because the source does not appear in the peer list.		Warning
Call is out of synchronization	There is a loss of synchronization for data coming from the serial side (relevant only when the **Signaling protocol** field is set to **Manual Control** in the **Physical Interface** section of the **Port** tab).		Warning
Cables mismatch	A serial cable is not appropriate for the configured serial port settings.		Warning

Trap Severity Enumeration

Table 1-9 describes the proprietary LifeSize Gateway SNMP trap severity enumerations.

Table 1-9 Proprietary LifeSize Gateway SNMP Trap Severity Enumerations

Trap Severity	Enumeration	Description
Cleared	0	One or more previously reported alarms have been cleared.
Information	1	Notification of a non-erroneous event.
Critical	2	A service-affecting event has occurred and immediate corrective action is required.
Major	3	A service-affecting event has occurred and urgent corrective action is required.

Table 1-9 Proprietary LifeSize Gateway SNMP Trap Severity Enumerations (continued)

Trap Severity	Enumeration	Description
Minor	4	A non-service-affecting event has occurred and corrective action is required to prevent the condition becoming more serious.
Warning	5	A potential or impending service-affecting event has been detected, but no significant affects have been felt yet. Action should be taken to further diagnose and correct the problem to prevent the condition becoming more serious.

Configuring Gateway Resources for Calls

Note The Resources section is available in Gateway-PRI only.

In the Resources section of the Settings tab, you can reserve LifeSize Gateway resources for T.120 enabled calls and for audio transcoded video calls. This section also displays the total number of calls that the LifeSize Gateway supports at specified bandwidths.

The LifeSize Gateway provides full end-to-end T.120 data collaboration sessions, provided that all terminals support the T.120 standard in their conferencing applications. In video calls with data transfer, the LifeSize Gateway accepts whatever bandwidth the ISDN connection defines for the data and dynamically adjusts the outgoing bandwidth used for data by using the MLP, HMLP and VarMLP formats.

You can also configure the LifeSize Gateway to prioritize the transcoding, giving preference to a particular codec that is applied to calls, thus optimizing the resource allocation utilized by each call.

The LifeSize Gateway supports up to 30 video calls on two B channels. If transcoding or T.120 capabilities are required, the LifeSize Gateway has to reserve resources for these. The LifeSize Gateway can differentiate between those calls that support T.120 and those that do not. When receiving calls, the LifeSize Gateway can check whether you are reserving resources for transcoding or for T.120 capabilities.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Resources**.
4. In the Maximum number of T.120 calls field, enter the number of T.120 enabled calls that you want to reserve LifeSize Gateway resources for. The maximum number is 18.
5. In the Maximum number of video calls with audio transcoding field, enter the number of audio transcoded video calls you want to reserve LifeSize Gateway resources for. The maximum number is 20.

Note The term *audio transcoded video calls* refers to the process whereby an audio stream in a multimedia call is transcoded from one codec type to another.

6. In the Total call capacity: n calls of n Kbps field, choose a bandwidth.
7. Click **Update total call capacity**.

   The number of calls that the LifeSize Gateway can support at that bandwidth automatically appears.

CONFIGURING GATEWAY ENCRYPTION

The LifeSize Gateway supports H.235-compliant AES 128 encryption for calls over IP networks, and H.233 and H.234-compliant AES 128 encryption for calls over ISDN networks.

Note (Gateway-PRIs only) An encrypted call uses double the resources of a regular call for all bandwidth rates. Gateway capacity when encryption is supported is therefore half of regular LifeSize Gateway capacity, rounded up to the nearest whole call.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Security**.
4. In the Encryption mode field, choose one of the following settings:
   - No Encryption (default)—Encryption support is disabled.
   - Transparent—The LifeSize Gateway implements pass-through of the encryption capabilities from side to side and does not separately negotiate capabilities with each side of the call. This option ensures consistent encryption status of all call legs—all legs are either encrypted, or all legs are non-encrypted.
   - Independent—The LifeSize Gateway negotiates encryption settings separately with each side of the call. This option enables you to define a separate connection mode (IP or ISDN, or IP or Serial) for each leg independently.
5. If you selected Independent at step 4, you need to assign a mode of operation to each call leg, as follows:

   In the ISDN (H.320) Mode and IP (H.323) Mode or Serial (H.320) Mode fields, choose one of the following settings:
   - No Encryption—Encryption support is disabled.
   - Best Effort—The LifeSize Gateway implements a “best effort” encryption algorithm. If an endpoint supports encryption, it connects in an encrypted way. If not, it connects without encryption.
   - Encryption Required—The LifeSize Gateway connects only AES 128 encrypted calls.
6. Click **Upload**.

CONFIGURING ADVANCED SETTINGS

In the Advanced section of the Settings tab, you can configure, enable, and disable various advanced LifeSize Gateway settings.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Advanced**.

   Table 1-10 explains the IP-to-ISDN (or Serial) call settings you can configure in this section.

   Table 1-11 explains the ISDN (or Serial)-to-IP call settings you can configure in this section.

   Table 1-12 explains the IP call settings you can configure in this section.

   Table 1-13 explains the ISDN call settings you can configure in this section (available in Gateway-PRI only).

   Table 1-14 explains the general call settings you can configure in this section.

Table 1-10 *Advanced Settings—IP to ISDN (or Serial) Calls*

Field or Check Box	Description
Conceal caller ID (unavailable in **Gateway-Serial**)	Select to have the LifeSize Gateway hide the identifier of the calling endpoint on the IP network, regardless of whether or not the Support Presentation Restriction advanced setting is selected. The *callerID* field of the Q.931 message is sent over the ISDN network empty.
Ignore caller bearer rate and force service rate	Select to configure the LifeSize Gateway to ignore the incoming call bearer rate and to use instead the bandwidth specified for the service on the Services tab to process the call. If the service bit rate is set to **Auto**, the LifeSize Gateway process the call at the bearer rate. Deselect to allow an administrator to limit a specific service to a maximum bit rate. When deselected and the bearer rate is greater than the service rate, the LifeSize Gateway processes the call at the service rate. When deselected and the bearer rate is lower than or equal to the service rate, the LifeSize Gateway processes the call at the bearer rate. If the bearer bit rate is set to Auto, the LifeSize Gateway process the call at the bearer rate.

Table 1-10 Advanced Settings—IP to ISDN (or Serial) Calls (continued)

Field or Check Box	Description
Auto dial voice call in case of video call fail (unavailable in **Gateway-Serial**)	Select to instruct the LifeSize Gateway to attempt to reconnect video calls as voice calls after a video call has failed at call setup. The LifeSize Gateway uses the auto-redial mechanism for outgoing video calls when any of the ISDN disconnect reasons listed below occur. When selected, the LifeSize Gateway first tries to redial the call as a restricted video call at 56 Kbps. If the call fails for any of the reasons listed below, the LifeSize Gateway tries to redial the call as a voice call. When deselected, the call disconnects. The LifeSize Gateway log indicates both the disconnect reason and the LifeSize Gateway attempt at redialing. **Note** The auto-redial mechanism operates independently of the downspeeding functionality. The ISDN disconnect reasons are: ■ 0x12—No user responding. ■ 0x39—Bearer capacity not authorized. ■ 0x3a—Bearer capacity not presently available. ■ 0x3f—Reports a “service or option not available” event only when no other cause in the “service or option not available” class applies. ■ 0x4f—Reports a “service or option not implemented” event only when no other cause in the “service or option not implemented” class applies. ■ 0x41—Bearer capability not implemented. ■ 0x45—Requested facility not implemented. ■ 0x58—Incompatible destination.
Use default service bit rate of *n* kbps for services defined to use ‘auto’ bit rate	Choose the default bit rate. When using a service with the bit rate set to Auto, the LifeSize Gateway uses the default bit rate if the received bearer rate is not one of the supported bit rates.

Table 1-11 Advanced Settings—ISDN (or Serial) to IP Calls

Field or Check Box	Description
Conceal caller ID (unavailable in **Gateway-Serial**)	Select to have the LifeSize Gateway hide the identifier of the calling endpoint on the ISDN network, regardless of whether or not the Support Presentation Restriction advanced setting is selected. The *callerID* field of the Q.931 message is sent over the IP network containing the string "0000."
Enable T.120 capabilities in incoming IVR and TCS4 calls	Select to enable the LifeSize Gateway to send T.120 capabilities messages to the ISDN endpoint upon receiving a call at the IVR-internal or TCS4 stage. The LifeSize Gateway sends the T.120 messages before connecting to the IP network endpoint.
Support sub-address at Call Setup (unavailable in **Gateway-Serial**)	Sub-addressing is a one-stage Direct Inward Dialing (DID) dialing mechanism in which a phone sends two numbers. One number is for routing on the circuit switched network. The other number is forwarded to the LifeSize Gateway inside a Q.931 sub-addressing information element for IP address resolution by the gatekeeper. Sub-addressing can also be used for implementing ISDN fallback when not enough bandwidth is available for routing an IP-oriented call over IP. Select for the LifeSize Gateway to take the E.164 number from the Q.931information element sub-address field and forward it to the gatekeeper for address resolution. Sub-addressing requires gatekeeper support.

Table 1-12 Advanced Settings—IP Options

Field or Check Box	Description
Support H.323 Fast Start in voice-only call setup (unavailable in **Gateway-Serial**)	The H.323 fast start functionality enables endpoints that support the feature to join a voice conference in the LifeSize Gateway more quickly. Standard call setup requires four round trips of messages between endpoints before the first media stream is exchanged between peers. The set of messages includes Setup/Connect (Q.931 procedure), Master/Slave Determination (H.245 procedure), Capability Exchange (H.245) and Open Logical Channel (H.245). H.323 fast start shortens the time it takes to start a call by skipping the H.245 phase and combining the call setup procedure into a single H.225 transaction. Select to encapsulate H.245 capabilities exchange and negotiation messages within Q.931 setup messages.

Table 1-12 Advanced Settings—IP Options (continued)

Field or Check Box	Description
Enable packet handling (may increase call delay)	Select to configure the maximum rate of jitter tolerance in the Network jitter tolerance field. Jitter occurs when IP packets sent at a steady rate reach their destination at different speeds. Streams can also split on their way to the LifeSize Gateway between different routers. This can cause a "later" packet B to arrive before an "earlier" packet A, even though A was sent before B.
Network jitter tolerance	If you selected the **Enable packet handling (may increase call delay)** check box, then enter the maximum rate of jitter tolerate in milliseconds. Packet loss occurs when jitter exceeds the configured rate.

Table 1-13 Advanced Settings—ISDN Options

Field or Check Box	Description
Request ISDN rollover when less than *n* B channels are available (available in Gateway-PRI only)	Select to define when the LifeSize Gateway uses the ISDN rollover feature (which is defined in advanced commands—see Configuring Advanced Commands on page 54 for more information). When the total number of available B channels in both PRI ports falls below the number specified in this field, the LifeSize Gateway sends a "busy out" message to the PSTN switch for each of the remaining B channels. The switch application "busies out" the remaining B channels and diverts new calls to other gateways on the network with greater available resources. This setting is only active after you configure the LifeSize Gateway to use a 4ESS PRI line. For example, you specify 10 in the Request ISDN rollover when less than n B channels are available field and the number of available B channels falls to 9. The LifeSize Gateway sends a "busy out" request message to the PSTN switch. The PSTN switch application routes new calls through other gateways on the network. When the total number of available B channels returns to at least 10, the LifeSize Gateway sends a "busy out" cancellation message to the PSTN switch indicating the restored ability to receive calls. The PSTN switch makes the "busied out" lines available and attempts attempt to route new calls through the LifeSize Gateway.

Table 1-14 Advanced Settings—General

Field or Check Box	Description
Restrict Gateway use to MCU conferences only	Select for the LifeSize Gateway to send and receive calls to and from an MCU only. This setting, together with a scheduling server, reserves resources for scheduled conferences only.
Support Presentation Restriction (unavailable in **Gateway-Serial**)	Select to enable support for the presentation restriction feature. This feature responds to an instruction from the calling endpoint to forward or to conceal the endpoint identifier.
Support H.239	Select to enable support for dual video channels using the H.239 protocol. This setting is selected by default. When selected, the LifeSize Gateway supports H.239 in ISDN-to-IP calls and in IP-to-ISDN calls. The LifeSize Gateway identifies the protocol version that an IP endpoint uses and sends H.239 capabilities only to those endpoints working with protocol version 4.0 or later. H.239 support has no impact on LifeSize Gateway capacity. We recommend that you do not enable this feature if you establish communication with endpoints that do not support H.245 generic capabilities (endpoints based on H.323 version 2 or earlier) as this might cause the endpoints to fail upon receiving these capability exchanges.

About DTMF Settings

The LifeSize Gateway performs Dual Tone Multi-Frequency (DTMF) detection on IP-to-ISDN calls and on ISDN-to-IP calls. The LifeSize Gateway can send DTMF tone information to the IP endpoint in-band only, or both in-band and out-of-band. The LifeSize Gateway sends DTMF tone information to the ISDN endpoint in-band only.

Note For Gateway-PRI, enabling DTMF detection for video calls reduces the number of supported calls at 128 Kbps from 30 to 22 when using an E1 connection. Capacities are lower when using a T1 connection

About DTMF

The signal generated by a DTMF encoder is a direct algebraic summation, in real time, of the amplitudes of time sine (or cosine) waves of different frequencies.

An example of the use of DTMF is in touch tone telephone dialing. DTMF tones are sent out as you dial. For example, pressing “1” sends a tone created by combining frequencies of 1209 Hz and 697 Hz.

The touch tone system uses pairs of tones to represent the various keys on the telephone. A “low tone” and a “high tone” are associated with each button (0-9, *, and #). The low tones vary according to the horizontal row in which the tone button is located in Table 1-15. The high tones correspond to the vertical column in which the tone is located. The local telephone company receives each pair of tones, decodes the number dialed and makes the connection.

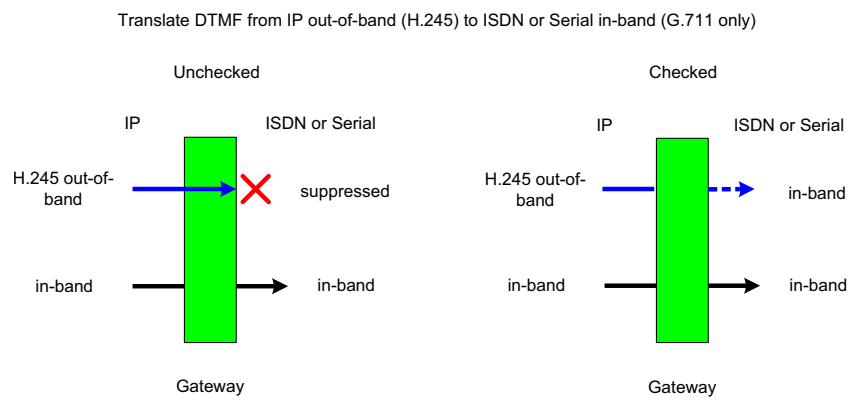
Table 1-15 *DTMF Tone Assignments*

	1209 Hz	**1336 Hz**	**1477 Hz**	**1633 Hz**
697 Hz	1	ABC 2	DEF 3	A
770 Hz	GHI 4	JKL 5	MNO 6	B
852 Hz	PRS 7	TUV 8	WXY 9	C
941 Hz	*	oper 0	#	D

About DTMF Detection on IP-to-ISDN or Serial Calls

The LifeSize Gateway passes incoming in-band DTMF signals to the ISDN or serial-side endpoint unchanged. In addition, you can configure the LifeSize Gateway to convert H.245 out-of-band DTMF signals from the IP side to in-band signals on the ISDN or serial side. Figure 1-1 illustrates IP-to-ISDN or serial DTMF processing.

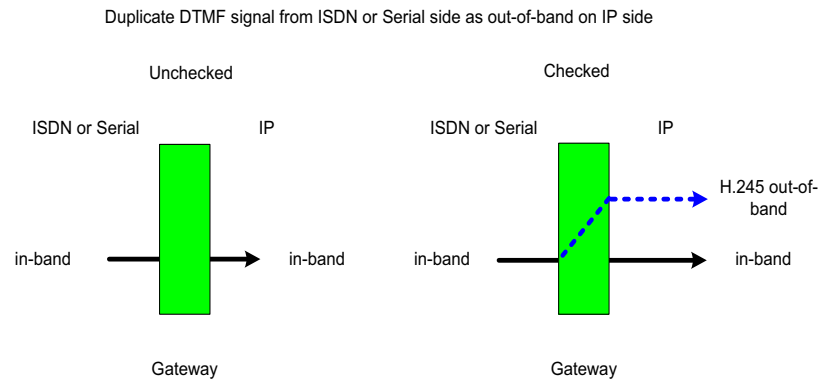
Figure 1-1 *IP-to-ISDN or Serial DTMF Processing*



About DTMF Detection on ISDN or Serial-to-IP Calls

The LifeSize Gateway passes incoming in-band DTMF signals to the IP-side endpoint unchanged. In addition, you can configure the LifeSize Gateway to convert in-band DTMF signals from the ISDN or serial side to H.245 out-of-band signals on the IP side. Figure 1-2 illustrates ISDN or serial-to-IP DTMF processing.

Figure 1-2 *ISDN or Serial-to-IP DTMF Processing*



CONFIGURING DTMF SETTINGS

You can enable DTMF detection and settings in the **Advanced** section of the **Settings** tab.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Advanced**.
4. In the IP to ISDN Calls section of the Gateway-PRI, you can select the **Translate DTMF from IP out-of-band (H.245) to ISDN in-band (G.711 only)** check box.

   In the **IP to Serial Calls** section of the Gateway-Serial, you can select the **Translate DTMF from IP out-of-band (H.245) to Serial in-band (G.711 only)** check box.

   When selected, the LifeSize Gateway performs the following:

   - Converts H.245 out-of-band DTMF signals coming from the H.323 IP-side endpoint to in-band signals on the ISDN side.
   - Passes incoming in-band DTMF signals to the ISDN-side endpoint unchanged.

   This setting is selected by default. If deselected, the LifeSize Gateway passes in-band DTMF signals to the ISDN-side endpoint unchanged.

5 In the ISDN to IP Calls section of the Gateway-PRI, you can select the **Duplicate DTMF signal from ISDN side as out-of-band on IP side** check box.

In the **Serial to IP Calls** section of the Gateway-Serial, you can select the **Duplicate DTMF signal from Serial side as out-of-band on IP side** check box.

When selected, the LifeSize Gateway performs the following:

- Converts in-band DTMF signals from the ISDN-side endpoint to out-of-band H.245 signals if the IP-side endpoint is located on an H.323 network.
- Passes incoming in-band DTMF signals to the IP-side endpoint unchanged.

This setting is selected by default. If deselected, the LifeSize Gateway passes in-band DTMF signals to the IP-side endpoint unchanged. If you do select this setting, perform step 6.

6 In the Apply to field of the Gateway-PRI, choose the type of calls to which ISDN-to-IP DTMF processing applies: Voice calls or Voice and video calls. Voice calls is the default setting.

Remember Enabling DTMF detection for Gateway-PRI video calls reduces the number of supported calls at 128 Kbps from 30 to 22.

CONFIGURING ADVANCED COMMANDS

You can send text-based commands to the LifeSize Gateway for enhanced control. You can use these advanced commands to change certain settings in real time and monitor information such as debug information. Advanced commands are not case sensitive.

Table 1-16 describes common advanced commands.

Table 1-16 *Advanced Command Settings*

Command	Description
AddService2SrcNum	Notifies the IP endpoint of the LifeSize Gateway service number to which the ISDN-side endpoint has called. Parameters: disable/enable.
CallSignalPort	Notifies the gatekeeper to which the LifeSize Gateway is registered on which port to communicate. Parameters: 1000 to 3000. Remarks: The number must be unique and not used for any other purpose.
DownSpeed (unavailable in Gateway-Serial)	Instructs the LifeSize Gateway to support downspeeding. Parameters: disable/enable.
EnhancedBillingForVoiceCalls (unavailable in Gateway-Serial)	Instructs the LifeSize Gateway to support the LifeSize Gatekeeper CDR *Real Connect Time* field. *Real Connect Time* indicates the actual time at which an IP-to-ISDN voice call connects to the ISDN terminal. When disabled, the LifeSize Gatekeeper uses the *Connect Time* field for CDR billing purposes. *Connect Time* indicates the time at which the Connect message is sent to the source endpoint. Parameters: disable/enable. Remarks: Default value is disable. Relevant to voice calls only. Operational only when the LifeSize Gateway is registered to a LifeSize Gatekeeper working in Routed Mode.
ForceG711ForMcu	Instructs the LifeSize Gateway to open only a G.711 channel in LifeSize Gateway-to-MCU calls. Parameters: disable/enable.

Table 1-16 Advanced Command Settings (continued)

Command	Description
NotifyLevel	Changes the type and number of debug messages that are generated. Parameters: 0—Disables LifeSize Gateway logs. 3 (default)—Fatal error (LifeSize Gateway can no longer provide service), a problem affecting user functionality (for example, call connect failure or no resources available), or status prints for Customer Support use. 6—Debugging. 8—Extended debugging. Remarks: We recommend that you do not exceed a NotifyLevel of 6 as this might overload the system with a very large debug message output. Level 3 should be sufficient for normal usage.
Peer-to-Peer disconnect reason add	Instructs the LifeSize Gateway under which circumstances to reroute a call to different peer device. Parameters: Enter a number representing the required H.323 call disconnect reason, as listed in Table 1-5.
Peer-to-Peer disconnect reason remove	Deletes the H.323 Call Disconnect Reason set by the Peer-to-Peer disconnect reason add advanced command. Parameters: ALL—Enter a number representing the required H.323 call disconnect reason, as listed in Table 1-5.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Settings** tab.
3. Click **Advanced**.
4. Click **Commands**.

   The Advanced Commands dialog box appears.

5 Configure an advanced command by one of the following methods:

- In the Command field, enter a command.
- In the Parameters field, enter the parameters for the command.

—or—

- In the Available commands field, select one of the advanced commands.
- In the Available parameters field, choose from one of the parameters that appears.

6 Click **Send**.

In the Response field, the LifeSize Gateway indicates whether it received and executed the command. If you send an invalid command, an "Unknown Command" message appears.

About Gateway Services

Gateway services are the mechanism that allows IP network endpoints to choose the type of connection they want to establish with a terminal or telephone on a circuit-switched network. A LifeSize Gateway service defines the maximum bit rate for each channel, the media content of the stream (voice or data), and the mode of the call (restricted or non-restricted).

A service prefix identifies a service. The service prefix is an identifier string that can have up to 31 characters. Valid characters are 0 to 9, pound (#), asterisk (*), or comma (,). You access a service by dialing the service prefix before the phone number of the destination. For example, 9* would be identified by the LifeSize Gateway as a service prefix if you dialed 9*5673994.

Note If the Ignore caller bearer rate and force service rate setting in the Advanced section of the Settings tab is selected, a service uses the defined bit rate. If the Ignore caller bearer rate and force service rate setting is deselected, the bit rate defined in the service serves as the maximum limit for the service.

The LifeSize Gateway has two types of services: default and user-defined. Default services come pre-configured on the LifeSize Gateway. User-defined services are services that you can define at any time using the LifeSize Gateway interface. Upon registration with a gatekeeper, the LifeSize Gateway provides the gatekeeper with a list of LifeSize Gateway services.

Related Topics

- About Existing Services on page 58
- Adding or Editing Services on page 58
- Deleting Gateway Services on page 60

About Existing Services

The **Services** tab in the LifeSize Gateway interface displays a list of currently defined services for the LifeSize Gateway in a table format with the following columns and fields:

- **Prefix**—Displays the prefix that identifies the service.
- **Description**—Description of the service.
- **Call Type**—Media type of the call.
- **Bit Rate**—Total bandwidth requested for the service.
- **PRI Port 1** or **2**/Serial **Port 1** to **4**—Indicates whether or not the service is enabled for the specified port.
- **Total**—Displays the total number of services currently defined in the LifeSize Gateway.

Adding or Editing Services

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click **Services**.
3. To add a new service, click **Add**. To edit an existing service, select it and then click **Edit**.
4. In the Prefix field, enter or edit the prefix number of the service. The prefix can be up to 31 characters long. Valid characters are 0 to 9 and pound sign (#), asterisk (*), and comma (,).

Note Since the comma cannot be used in the Party number field of the LifeSize Multipoint Conference Control interface, we recommend that you do not use the comma as a prefix in LifeSize Gateway fields.

5 In the Description field, enter or edit the description of the service (up to 31 characters in length).

6 In the Call type field, select the call type for this service: Video or Voice.

7 In the Bit rate field, select the maximum bit rate you want for this service. If you select **Auto**, the LifeSize Gateway determines the ISDN or serial call rate according to the bearer capability received in the setup message from the IP network endpoint.

Note The Auto setting is for video calls only.

If the IP network endpoint has a configured bit rate that is not one of the options listed in this field, the LifeSize Gateway uses the default bit rate configured in the Default Service Bit Rate field in the Advanced section of the Settings tab.

Note If the Ignore caller bearer rate and force service rate field is selected when you define a bit rate for a service, the service uses the defined bit rate. If the Ignore caller bearer rate and force service rate field is deselected, the bit rate you define serves as the maximum limit for that service.

Related Topics

- Bonding Synchronization

Bonding Synchronization

(Gateway-PRI only) The Advanced dialog box enables you to configure a bonding synchronization setting for the specified service.

Procedure

1 Send the ServiceOption advanced command with a parameter of *enable to* activate the Advanced button.

For information on sending advanced commands, see Configuring Advanced Commands on page 54.

2 Click **Advanced** to configure bonding synchronization settings.

The Advanced dialog box appears.

3. In the Bonding Synchronization field, choose a bonding synchronization setting. Select **Prolong** only for endpoints that use non-standard synchronization mechanisms.
4. Click **OK** to save your setting and close the Advanced dialog box.
5. Click the **Port Specific** tab.
6. In the Enable service in ports section, select the PRI ports that are enabled for this service.
7. Click **OK**.

   The LifeSize Gateway interface uploads your settings to the services database.

Deleting Gateway Services

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the **Services** tab.
3. Select a service and click **Delete**.

Configuring Port Settings

- Configuring Basic Port Settings on page 61
- How to Configure Port Physical Interface Settings on page 62
- About Advanced ISDN Settings for PRI Gateways on page 70
- Configuring Port Call Policies on page 81
- Configuring Port Supported Services on page 82

Note Some configuration options are unavailable in LifeSize Gateways that support only one PRI port.

Configuring Basic Port Settings

In the Basics section of the PRI Port or Serial Port tabs, you can configure basic settings for the specified port.

Note (Gateway-PRIs only) A frame alignment failure message will appear when you enable a port that is not in use (no cable is attached to the PRI line connector).

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** or **Serial Port** tab.
3. Select the **Port enabled** check box to enable this port. For Gateway-PRIs and Gateway-Serials, if this setting is deselected, the CD LED light on the rear panel of the LifeSize Gateway is disabled.
4. (Gateway-PRIs only) In the Port phone numbers section, choose one of the following option buttons:
   - **Single Number**—Defines a single number for this PRI port. Enter a phone number in the field.
   - **Range**—In the two fields, enter a range of numbers for this PRI line. If the line has a range of numbers, you only need to enter the digits necessary to indicate the range. For example, if the phone numbers assigned to this line are 6775380 to 6775411, enter 380-411. You can type a maximum of 31 digits in each text field.
5. (Gateway-PRIs only—optional) In the Local Area Code field, enter the local area code for the phone numbers. You can enter up to 16 digits.
6. (Gateway-PRIs only—optional) Select the **Strip Local Area Code** check box if you want the LifeSize Gateway to strip local area codes for outbound calls to the ISDN network.

Note The type of line connected to this PRI port appears in the Physical standard field.

How to Configure Port Physical Interface Settings

- Configuring Physical Line Properties of PRI Ports
- Configuring Fractional Channels on PRI Ports
- Configuring Properties of Serial Ports

Configuring Physical Line Properties of PRI Ports

Note This section applies only to Gateway-PRI.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** tab.
3. Click **Physical Interface**.
4. Select the **Same as Port** check box if you want to duplicate physical interface settings from another PRI port that you choose from the field. When selected, you cannot modify any settings in this section. This option is not available in LifeSize Gateways that support only one PRI port.
5. In the Interface field, choose the line interface: **T1** or **E1**.
6. In the Country field, choose the nation where the ISDN service is installed.
7. In the Signaling protocol field, choose the signaling protocol used to set up and tear down the calls through the signaling (D) channel. Depending on the interface used, different signaling protocols are available.
8. In the Network access field, choose the LifeSize Gateway national access type: **TE** (Terminal Equipment) or **NT** (Network Terminator) device.
9. In the Clock source field, choose the LifeSize Gateway clock source:
   - **Master** (the LifeSize Gateway provides the clock signal)

- **Slave** (the LifeSize Gateway receives the clock signal)

10 In the Line Build Out field, choose **Long Haul** or **Short Haul**.

Note You can configure this setting only if you select **Japan** in the Country field. Skip to step 4 otherwise.

Related Topics

- Configuring Fractional Channels on PRI Ports
- Configuring Line Coding, Framing and Signaling Type on PRI Ports

Configuring Fractional Channels on PRI Ports

In the Physical Interface section of the PRI Port tabs, you can configure fractional channels as part of the physical line properties of the specified PRI port.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable PRI Port tab.
3. Click **Physical Interface**.
4. Click **Fractional** to select fractional channels.

   The Fractional dialog box appears.
5. Select the **Fractional line** check box to enable the fractional selection of channels.

6 In the Select the channels field, select the check boxes for the individual channels you want to use for fractional E1 or T1 distribution. The table contains 24 check boxes for T1 or 31 check boxes for E1.

Note You cannot select channel 24 of the T1 settings and channel 16 of the E1 settings. These are reserved as the signaling (D) channels that are essential for communication.

Note Click **Select All** to select all fractional channels or **Deselect All** to deselect all fractional channels.

7 Click **OK** to close the Fractional dialog box.

Configuring Line Coding, Framing and Signaling Type on PRI Ports

In the Physical Interface section of the PRI Port tabs, you can configure coding, framing, and signaling type settings as part of the physical line properties of the specified PRI port.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2 Click the applicable **PRI Port** tab.
3 Click **Physical Interface**.
4 Click **Advanced** to configure line coding, framing, and signaling type.
The Advanced dialog box appears.
5 In the Line coding field, choose the type of modulation used to encode the data.

6 In the Framing field, choose the framing and error detection method.

Note The ESF CRC6JT framing option is available only if you select **Japan** in the Country field and **Long Haul** in the Line Build Out field.

7 In the Signaling type field, choose the signaling type.

8 Click **OK** to close the Advanced dialog box.

Configuring Properties of Serial Ports

Note This section applies only to Gateway-Serial.

In the **Physical Interface** section of the Serial **Port** tabs, you can control the properties of the cable connected to the specified serial port. When a cable is connected to a serial port, the LifeSize Gateway identifies the type of the cable and displays the information in the **Interface** and **Physical standard** fields of the **Physical Interface** section. In such cases, you cannot modify these fields. If the LifeSize Gateway does not detect a connected cable, you can modify the **Interface** and **Physical standard** fields. For changes to settings in these fields to take effect, the system should be rebooted.

Gateway line cables are attached to the LifeSize Gateway via a DB-60 connector that provides the serial line connection for the LifeSize Gateway serial ports. The cables are Y-type with split leads at the remote end. On one side is either a V.35, RS-449, EIA-530, or EIA-530A connector. On the other side is an RS-366 connector.

Gateway terminal adapter cables have either a DTE or a DCE interface.

The LifeSize Gateway can identify which type of cable has been connected to its DB-60 serial ports. Cable configuration settings are automatically displayed in the **Physical Interface** section of the **Port** tabs. The automatically configured settings are shown in Table 1-17 on page 67.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).

2 Click the applicable **Port** tab.

3 Click the **Physical Interface** button.

4. In the **Interface** field, select the DTE or DCE cable interface (disabled after you have connected a cable).

   The **Physical standard** field displays the type of line connected to the serial port.

5. In the **Terminal adapter** field, select the required terminal adapter type. Enabled only when **DTE** is selected in the **Interface** field. When **DCE** is selected in the **Interface** field, the **Terminal adapter** option is set to **Common** and disabled.

6. In the **Signaling protocol** field, select a signaling protocol for use in call setup from the following list:

   - **RS-366—**Carries signaling information only.
   - **Data Triggered**—Enables the LifeSize Gateway to connect a call when it detects valid incoming data from an endpoint on the serial network.
   - **Manual Control**—Enables an Administrator to manually connect a call via the LifeSize Gateway web user interface.

   Different signaling protocols are available depending on the interface and terminal adapter that you select, as shown in Table 1-17.

   The **Signaling protocol** field is enabled only you select **DTE** in the **Interface** field. The **Signaling protocol** field is set to **RS-366** and disabled when you select **DCE** in the **Interface** field.

7. In the **Incoming default bandwidth** field, set the rate to which the LifeSize Gateway forces the bandwidth of an incoming call. Available only when **DCE** is selected in the **Interface** field.

8. (Optional) Click **Connect Call/Disconnect Call** to connect or disconnect the specified call. Available only when **Manual Control** is selected in the **Signaling protocol** field.

9. Click **Reset**.

Table 1-17 DTE/DCE Interface Configuration Options

Interface Selected	Terminal Adapter Options	Signaling Protocol Options
DTE	Common	RS-366, Manual Control, Data Triggered
	KG-Device	RS-366, Manual Control, Data Triggered
DCE	Common	RS-366

Related Topics

- Configuring Signal State and Loopback Control Options
- Viewing Connection Status

Configuring Signal State and Loopback Control Options

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **Port** tab.
3. Click the **Physical Interface** button.
4. Click the **Advanced** button to configure non-standard signal state and loopback control options:
   - **Force Signal State**—Enables separate control over signals. When you uncheck a specific signal option, signaling control is defined by the standard logic of the LifeSize Gateway. When you check a specific signal option, you can force the signal to the on or off state. Signals can be on all the time or off all the time.
   - **Enable Local Loopbaclk**—Enabled for non-**KG-Device** terminal adapters only. When checked, instructs the LifeSize Gateway to perform loopback locally to the specified port without the involvement of a remote entity. The LifeSize Gateway raises an LL control signal to request that the DCE device moves to loopback mode.

- **Enable Remote Loopback**—Enabled for non-**KG-Device** terminal adapters only. When checked, sends a loopback command via the specified port to an endpoint on the remote side of the serial interface. The LifeSize Gateway raises an RLB control signal to request that the DCE device moves to loopback mode.
- **LOS support**—Enables LOS control over the synchronization signal towards a KG-Device. Enabled for **KG-Device** terminal adapters only. When checked, allows sending of a synchronization signal to the KG-Device if the LifeSize Gateway needs to update the video image coming from the serial port.

Note When you select **DCE** in the **Interface** field, the **Advanced** button is disabled and signal state and loopback control settings are defined by the standard logic of the LifeSize Gateway.

5 Click **Upload**.

VIEWING CONNECTION STATUS

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2 Click the applicable **Port** tab.
3 Click the **Connection Status** button.
   - When **DTE** is selected in the **Interface** field, the **Connection Status** screen displays the signal state and loopback control settings you have configured in the **Advanced** dialog box.

- When **DCE** is selected in the **Interface** field, the **Connection Status** screen displays the signal state and loopback control settings defined by the standard logic of the LifeSize Gateway.

Note Blue lines indicate that the specified signal is on. Gray lines indicate that the specified signal is off.

Table 1-18 lists connection status and loopback control signals.

Table 1-18 *Connection Status and Loopback Control Signal Descriptions*

Signal	Description
CTS	Clear To Send
DSR	Data Set Ready
CI	Call Indication
DCD	Data Carrier Detected
DTR	Data Terminal Ready
RTS	Request To Send
LL	Local Loopback
RLB	Remote Loopback
DPR	Digit Present
CRQ	Call Request
ACR	Abandon Call & Retry
PND	Present Next Digit
DSC	Distant Site Connected
DLO	Data Line Occupied

About Advanced ISDN Settings for PRI Gateways

Note This section applies only to Gateway-PRI.

In the Advanced ISDN section of the PRI Port tabs, you can view and configure ISDN settings for Gateway-PRI. Table 1-19 explains the information that this tab displays.

Table 1-19 *Advanced ISDN Tab Details*

Column or Field	Description
Prefix	Displays the prefix of the advanced ISDN entry.
Description	Displays a brief description of the advanced ISDN entry.
NPI	Displays the Numbering Plan Identification (NPI) classification for the ISDN phone number.
TON	Displays the Type of Number (TON) code for the advanced ISDN entry.
NSF	Indicates whether the Network Specific Facility feature is enabled or disabled for the Advanced ISDN entry.
Max Digits	Displays the maximum number of digits allowed for outbound dialing.
DN Manipulation	Indicates whether advanced ISDN prefix number is enabled. For default prefix entries where TON is local, this field indicates whether the DN Manipulation setting is set to Append Local Area Code in the Add or Edit ISDN Information Elements dialog box (see Adding or Editing ISDN Information Elements on page 77 for more information).
Total	Displays the total number of ISDN information elements currently listed in the LifeSize Gateway database.

Note You can select the **Same as Port** check box and select another PRI port to duplicate advanced ISDN settings from that port. When you select this option, you cannot make any edits to the configuration settings. This option is unavailable in LifeSize Gateway that support only one PRI port.

Related Topics

- About NSF Settings on page 71
- Adding or Editing ISDN Information Elements on page 77
- Deleting ISDN Information Elements on page 81

About NSF Settings

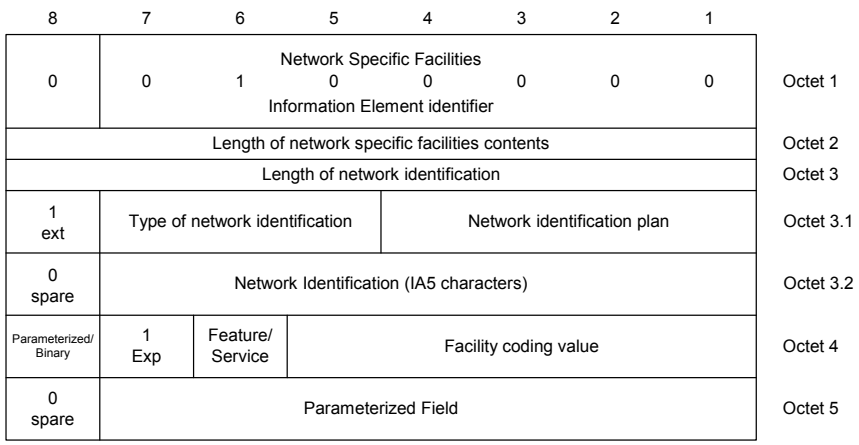
The NSF Information Element (IE) feature enables system administrators to coordinate network and service requirements with service providers. Service providers supply the information that you enter in the **NSF Configuration** dialog box. System administrators can either select any of the pre-configured NSF settings, or choose to configure their own NSF Information Element using service provider information.

You can specify the following information in the NSF:

- The service providers with which you want their network to work.
- The specific network plan and equipment with which you want your network to work (for example, switches and bandwidth).
- The specific services available to their network (for example,1-800 phone numbers).

Instructions are contained in the NSF IE fields of outgoing Q.931 setup messages in the format shown in Figure 1-3.

Figure 1-3 *Network Specific Facility Information Element Format*



NSF Information Elements contain a number of configurable **Octet** fields. The values entered in these fields represent instructions contained in outgoing Q.931 Setup messages. Figure 1-3 represents the format of such instructions. Table 1-20 describes the function of each of the **Octet** fields.

Table 1-20 *Octet Field Functions*

Octet	Function
Octet 3	Octet 3 represents the total number of Octet 3.X fields required for the specific information element, including the Octet 3 field itself.

Table 1-20 Octet Field Functions (continued)

Octet	Function
Octet 3.1	Octet 3.1 is used to hold Numbering Plan Identification (NPI) and Type of Network (TON) values. The octet contains eight bits numbered from 1 to 8 and from right to left, so that Bit 1 is rightmost and Bit 8 is leftmost. The bits contain binary values representing the following functions: ■ Bits 1-4 = NPI ■ Bits 5-7 = TON ■ Bit 8 is always set to 1 when Octet 3.1 is used and populated. **Note** The **Numbering Plan Identification (NPI)** and **Type of Network (TON)** fields appear in the **Add ISDN Information Elements** dialog box The standard NPI values are: ■ For an NPI setting of Unknown, the standard integer value is 0 and the standard binary value is 0. ■ For an NPI setting of ISDN/Public, the standard integer value is 1 and the standard binary value is 0001. ■ For an NPI setting of Private, the standard integer value is 9 and the standard binary value is 1001. The standard TON values are: ■ For a TON setting of unknown, the standard integer value is 0 and the standard binary value is 0. ■ For a TON setting of International, the standard integer value is 1 and the standard binary value is 0001. ■ For a TON setting of National, the standard integer value is 2 and the standard binary value is 0010. ■ For a TON setting of Network, the standard integer value is 3 and the standard binary value is 0011. ■ For a TON setting of Local, the standard integer value is 4 and the standard binary value is 0100.

Table 1-20 *Octet Field Functions (continued)*

Octet	Function
Octet 3.2	Octet 3.2 is used to hold information including Carrier Identification Codes (CIC). A CIC is three-digit number used to access the switched services of a particular long-distance carrier from a local exchange line. All long-distance carriers, and many long-distance resellers, have their own unique CIC. One or more CIC codes are assigned to each carrier. Some examples of CIC are: ■ MCI VNET: 222 ■ AT&T Communications: 288 ■ Sprint: 333
Octet 4	Octet 4 is used to hold information representing coding values for features and services. Service providers supply the coding values. The octet contains eight bits numbered from 1 to 8 and from right to left, so that Bit 1 is rightmost and Bit 8 is leftmost. The bits contain values representing the following functions: ■ Bits 1-5=The binary Facility Coding Value for the specified feature or service. ■ Bit 6 indicates whether the facility is a feature or a service: □ 0=The requested facility is a feature. □ 1=The requested facility is a service. ■ Bit 7 is always set to 1 ■ Bit 8 indicates whether the requested facility has associated parameters or is binary: □ 0=There are parameters associated with the requested facility and they are specified in Octet 5. □ 1=The requested facility is a binary facility. There are no parameters.
Octet 5	Octet 5 is used to hold information representing coding values for parameterized facilities. The octet contains eight bits numbered from 1 to 8 and from right to left, so that Bit 1 is rightmost and Bit 8 is leftmost. The bits contain values representing the following functions: ■ Bits 1-7 represents the parameterized field coding value. ■ Bit 8 is for future use.

Table 1-21 shows Octet 4 binary facility coding values for specified features when Bit 6 is set to 0. Table 1-22 shows binary facility coding values for specified services when Bit 6 is set to 1.

Table 1-21 *Feature Binary Facility Coding Values*

Bits					Feature
5	**4**	**3**	**2**	**1**	
0	0	0	0	1	Calling party number preferred
0	0	0	1	0	Billing number preferred
0	0	0	1	1	Calling party number only
0	0	1	0	0	Billing number only
0	0	1	0	1	Operator
0	0	1	1	0	Pre-subscribed Common Carrier Operator
0	0	1	1	1	Reserved
0	1	0	0	1	Call-Associated Temporary Signaling Connection (TSC)
0	1	0	1	0	Notification of Call-Associated TSC clearing
0	1	0	1	1	Reserved
0	1	1	0	0	Reserved
1	0	0	0	0	Reserved

Table 1-22 *Service Binary Facility Coding Values*

Bits					Feature
5	**4**	**3**	**2**	**1**	
0	0	0	0	1	Software Defined Network (SDN). Includes Global SDN)
0	0	0	1	0	AT&T Megacom

Table 1-22 *Service Binary Facility Coding Values*

Bits					Feature
5	**4**	**3**	**2**	**1**	
0	0	0	1	1	AT&T Megacom
0	0	1	0	0	Reserved
0	0	1	0	1	Wide Area Telecommunications Service (WATS)
0	0	1	1	0	AT&T Accunet Switched Data Video Gateway (SDVG)
0	0	1	1	1	Long Distance Service
0	1	0	0	0	International 800 (1800)
0	1	0	0	1	Reserved
0	1	0	1	0	Reserved
0	1	0	1	1	Reserved
0	1	1	0	0	Reserved
1	0	0	0	0	Multiquest
1	0	0	0	1	Reserved
1	0	0	1	0	800
1	0	0	1	1	Test call
1	0	1	0	0	Inward Wide Area Telecommunications Service (INWATS)
1	0	1	0	1	SDN-K (Key Service Protection)
1	0	1	1	1	Call Redirection Service

Table 1-23 shows Octet 5 parameterized facility coding values.

Table 1-23 *Parameterized Field Binary Coding Values*

Bits							Parameterized Field
7	**6**	**5**	**4**	**3**	**2**	**1**	
0	0	0	0	0	0	1	Alternate handling on Ring/No Answer
0	0	0	0	1	1	0	Sponsor Flexible Rating (SFR)
0	0	0	1	1	0	0	Out-of-band triggers allowed—data allowed
0	0	0	1	1	0	1	Out-of-band triggers allowed—data not allowed
0	0	0	1	1	1	0	Network Managed Data
0	0	0	1	1	1	1	Switched Data Video Gateway (SDVG) Service

Adding or Editing ISDN Information Elements

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** tab.
3. Click **Advanced ISDN**.
4. Click **Add** to add a new ISDN information element or select an existing one and click **Edit** to modify it.

   The Add or Edit ISDN Information Elements dialog box appears.
5. In the Prefix field, enter or edit the prefix for the ISDN information element. If you set this field to **Default**, it cannot be edited after you create the element.

6 In the Description field, enter or edit the description of the ISDN information element. If you set this field to **Default**, it cannot be edited after you create the element.

7 In the Numbering Plan Identification (NPI) field, choose an NPI code for the ISDN information element.

8 In the Type of Number (TON) field, choose a TON code for the ISDN information element.

9 In the Maximum digits send field, enter the number of digits (up to a maximum of 32) allowed for outbound dialing.

10 In the DN Manipulation field, you can configure the stripping of the ISDN information prefix number from the outbound dialed number.

The options in this field vary according to the options set in the Prefix and Type of Number (TON) fields. Table 1-24 details the possible variations

Table 1-24 *DN Manipulation Option Variations*

Prefix Field	Type of Number (TON) Field	DN Manipulation Options
Default	Local	None, Append Local Area Code
Default	Any except Local	None
Any except Default	Any	None, Strip Prefix

You are now ready to configure your required Network Specific Facility settings (see Configuring Network Specific Facility Settings).

Configuring Network Specific Facility Settings

This section describes how to complete the procedure that you began in Adding or Editing ISDN Information Elements on page 77.

Procedure

1. In the Network Specific Facility (NSF) field, make one of the following selections:
   - Choose one of the pre-configured settings or choose **None** to not configure any NSF information elements. Table 1-25 lists the pre-configured settings.

Table 1-25 *Pre-configured NSF Settings*

Pre-configured Setting	Information Element (IE) Octets								
	IE 1 Octets						IE 2 Octets		
	3	3.1	3.2	3.2	3.2	4	3	4	5
AT&T Accunet	4	A1	32	38	38	E6			
AT&T Megacom	4	A1	32	38	38	E3			
AT&T Megacom 800	4	A1	32	38	38	E2			
AT&T SDDN	4	A1	32	38	38	E1			
AT&T Accunet + SDVG	4	A1	32	38	38	E6	0	49	0F
AT&T Megacom + SDVG	4	A1	32	38	38	E3	0	49	0F
AT&T Megacom 800 + SDVG	4	A1	32	38	38	E2	0	49	0F
AT&T SDDN + SDVG	4	A1	32	38	38	E1	0	49	0F
MCI VNET	4	A9	32	32	32	E1			
Sprint VPN	4	A9	33	33	33	E1			

—or—

- Choose **Custom**.

- Click **Configure**.

  The NSF Configuration dialog box appears. You can configure up to four NSF information elements.

Note You can only configure the NSF information elements (NSF IEs) if you set the Interface field in the Physical Interface section of the PRI Port tab to **T1** and set the Country field to **US**. All outgoing Q.931 setup messages will contain the NSF IE.

- Select the **Enable** check box.
- In the Octet 3 field, choose a value. When the value is greater than 0, that number of fields appears beneath the Octet 3 field. If this field is set to 0, the Octet 3.1 and Octets 3.2 fields are not available. If this field is set to 1, only the Octet 3.1 field is available.
- In the Octet field(s), choose settings.
- In the Type field, choose **Binary feature** or **Binary service** and then in the Facility Coding Value field, enter a value.

  —or—

  In the Type field, choose **Parameterized** and then in the Parameterized Field field, enter a value.

  —or—

  In the Type field, choose **Custom** and then in the Octet 4 and Octet 5 fields (if applicable), enter a value.

Note When you select **Binary feature** or **Binary service** in the Type field, the Facility Coding Value field is for Octet 4, Bits 5-1. When you select **Parameterized** in the Type field, the Parameterized Field field is for Octet 5, Bits 7-1. When you select **Custom** in the Type field, the values entered in the Octet 4 or Octet 5 fields are not subject to bit restriction.

- Repeat step 1 for as many additional NSF information elements as necessary.

Deleting ISDN Information Elements

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** tab.
3. Click **Advanced ISDN**.
4. Select an ISDN information element and click **Delete**.

Configuring Port Call Policies

In the Call Policies section of the PRI Port or Serial Port tabs, you can configure the incoming call routing methods available in the LifeSize Gateway for each specified port. You can define each port with different settings.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** or **Serial Port** tab.
3. Click **Call Policies**.
4. Select the **Same as Port** check box to duplicate call policies settings from another LifeSize Gateway port that you choose from the field. When selected, you cannot modify any settings in this section. This option is unavailable in LifeSize Gateways that support only one PRI port.
5. In the Enable inbound routing methods section, you can select incoming call routing methods in the following order of priority:
   - **DID**—When selected, enables Direct Inward Dialing to an endpoint.
   - **TCS4**—When selected, enables TCS4 dialing. This setting does not apply to voice calls.
   - **IVR**—When selected, enables the Interactive Voice Response operator.
   - **Default extension**—When selected, enables the use of the default extension number that you enter in the field.

6. (Gateway-PRI only) Select the **Overlap Receiving** check box to enable overlap receiving functionality. In this functionality, the LifeSize Gateway can receive consecutive digits until the dialing is complete, instead of receiving the entire phone number as a block of digits. The LifeSize Gateway recognizes that an overlap receiving dialing is completed when it receives a fixed, predefined, incoming number of digits. If the LifeSize Gateway receives a complete indication notification from the switch (PSTN) or a timeout before all the digits have been dialed, the call might connect to a different address or rejected. If you select this setting, perform step 7, otherwise skip to step 8.
7. (Gateway-PRI only) In the Incoming number of digits field, enter the number of digits you want the LifeSize Gateway to expect during overlap receiving. The LifeSize Gateway waits until this number of specified digits is received and then processes the whole number. You can enter any value up to 32.
8. (Gateway-PRI only) In the Outgoing Calling Party Number field, enter a number that the LifeSize Gateway automatically provides if the calling IP network endpoint does not provide a calling party number. Valid digits are 0 through 9 You can enter up to 11 digits.
9. (Serial LifeSize Gateways only) In the **Display name for incoming calls** field, enter an alias for this serial port. The LifeSize Gateway sends this alias to the IP endpoint in serial-to-IP calls.

Configuring Port Supported Services

In the Supported Services section of the PRI Port or Serial Port tabs, you can enable or disable specific LifeSize Gateway services on each port. The Supported Services section displays this information in table form:

- **Prefix**—Displays the prefix for this service.
- **Description**—Displays a brief description of the service.
- **Call Type**—Displays the call media type: Voice or Video.
- **Bit Rate**—Displays the maximum total bit rate allowed for this service.
- **Support**—Displays the status of the service: enabled or disabled.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. Click the applicable **PRI Port** or **Serial Port** tab.
3. Click **Supported Services**.
4. Select the **Same as Port** check box if you want to duplicate settings from another LifeSize Gateway port that you choose from the field. When selected, you cannot modify any settings in this section. This option is unavailable in LifeSize Gateways that support only one PRI port.
5. To enable or disable a service for this port, select it and click **Enable** or **Disable**.

How to View Call Information

- About Call Information on page 83
- Refreshing Call Information on page 84
- Viewing Call Details on page 84
- Disconnecting Calls on page 88

About Call Information

The Calls tab displays a list of the calls currently defined in the LifeSize Gateway and the basic details of each call. The Calls tab displays the following information in table format:

- **Call ID**—Displays the call identifier.
- **Source Party Number**—Displays the alias that identifies the source endpoint of the call.
- **Destination Party Number**—Displays the alias that identifies the destination endpoint of the call.
- **Start Time**—Displays the time at which the call began.
- **Total Call Bandwidth**—Displays the total bandwidth (in Kbps) used for this call on both sides.
- **Encryption**—Indicates the level of encryption currently in use for the specified call leg.
- **Total**—Field indicates the total number of calls currently defined in the LifeSize Gateway.

Refreshing Call Information

You can configure the LifeSize Gateway interface to refresh information that appears in the Calls tab every ten seconds.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. In the Calls tab, select the **Auto Refresh** check box.

Viewing Call Details

In the Calls tab, you can view detailed information for each call currently defined in the LifeSize Gateway.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. In the Calls tab, select a call and click **Details**.

   The Call Details window appears. Table 1-26 explains the information that this window provides.

Table 1-26 *Call Details Window Fields*

Field	Description
Start	Displays the time at which the call began.
Duration	Displays the length of time that the call has been in progress.
Bandwidth (Kbps)	Displays the total bandwidth (in Kbps) used for this call on both sides.
Source	
Source	Indicates whether the source endpoint of the call is located on an ISDN (or serial) or IP network.
Number	Displays the alias that identifies the source endpoint of the call.

Table 1-26 *Call Details Window Fields (continued)*

Field	Description
B channels (not available in Gateway-Serial)	Displays the B channels currently in use for this call.
Resync B channels (not available in Gateway-Serial)	In mid-call, you can click this button to resynchronize B channels in cases of poor call quality. Use this option with extreme caution. Resynchronizing B channels can cause a call to disconnect.
Encryption	"Encryption: AES 128" displays when the call leg is encrypted.
Audio	Displays the audio transcoding protocol and the bandwidth of the voice calls in both directions between the source endpoint and the LifeSize Gateway.
Video	Displays the video transcoding protocol, the frame format, and the bandwidth of the video calls in both directions between the source endpoint and the LifeSize Gateway. **Note** The Video 2 stream is active when dual video streams for a single call are in use.
Data	Displays the bandwidth of the data calls in both directions between the source endpoint and the LifeSize Gateway.
Gateway	
Transcoded	Indicates that a call is transcoded.
Destination	
Destination	Indicates whether the destination endpoint of the call is located on an ISDN (or serial) or IP network.
Number	Displays the alias that identifies the destination endpoint of the call.
Name	Displays the name that identifies the destination endpoint of the call.

Table 1-26 Call Details Window Fields (continued)

Field	Description
B channels (not available in Gateway-Serial)	Displays the B channels currently in use for this call.
Resync B channels (not available in Gateway-Serial)	In mid-call, you can click this button to resynchronize B channels in cases of poor call quality. Use this option with extreme caution. Resynchronizing B channels can cause a call to disconnect.
Encryption	"Encryption: AES 128" displays when the call leg is encrypted.
Audio	Displays the audio transcoding protocol and the bandwidth of the voice calls in both directions between the source endpoint and the LifeSize Gateway.
Video	Displays the video transcoding protocol, the frame format, and the bandwidth of the video calls in both directions between the source endpoint and the LifeSize Gateway. **Note** The Video 2 stream is active when dual video streams for a single call are in use.
Data	Displays the bandwidth of the data calls in both directions between the source endpoint and the LifeSize Gateway.
Gateway	
Transcoded	Indicates that a call is transcoded.
Destination	
Destination	Indicates whether the destination endpoint of the call is located on an ISDN (or serial) or IP network.
Number	Displays the alias that identifies the destination endpoint of the call.
Name	Displays the name that identifies the destination endpoint of the call.

Table 1-26 *Call Details Window Fields (continued)*

Field	Description
B channels (not available in Gateway-Serial)	Displays the B channels currently in use for this call.
Resync B channels (not available in Gateway-Serial)	In mid-call, you can click this button to resynchronize B channels in cases of poor call quality. Use this option with extreme caution. Resynchronizing B channels can cause a call to disconnect.
Encryption	"Encryption: AES 128" displays when the call leg is encrypted.
Audio	Displays the audio transcoding protocol and the bandwidth of the voice calls in both directions between the source endpoint and the LifeSize Gateway.
Video	Displays the video transcoding protocol, the frame format, and the bandwidth of the video calls in both directions between the source endpoint and the LifeSize Gateway. **Note** The Video 2 stream is active when dual video streams for a single call are in use.
Data	Displays the bandwidth of the data calls in both directions between the source endpoint and the LifeSize Gateway.
Gateway	
Transcoded	Indicates that a call is transcoded.
Destination	
Destination	Indicates whether the destination endpoint of the call is located on an ISDN (or serial) or IP network.
Number	Displays the alias that identifies the destination endpoint of the call.
Name	Displays the name that identifies the destination endpoint of the call.

Table 1-26 Call Details Window Fields (continued)

Field	Description
IP	Displays the IP address of the destination endpoint of the call.
Packet Loss (%)	Displays the rate of packet loss in communication from the IP side of the call to the LifeSize Gateway, regardless of whether the source endpoint is located on an ISDN (or serial) or IP network.
Encryption	"Encryption: AES 128" displays when the call leg is encrypted.
Audio	Displays the audio transcoding protocol and the bandwidth of the voice calls in both directions between the LifeSize Gateway and the destination endpoint.
Video	Displays the video transcoding protocol, the frame format, and the bandwidth of the video calls in both directions between the LifeSize Gateway and the destination endpoint. **Note** The Video 2 stream is active when dual video streams for a single call are in use.
Data	Displays the bandwidth of the data calls in both directions between the LifeSize Gateway and the destination endpoint.

DISCONNECTING CALLS

On the Calls tab, you can disconnect a currently active call or disconnect all active calls.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Gateway** (if not already selected).
2. In the Calls tab, select a call and click **Disconnect**, or to disconnect all calls, click **Disconnect All Calls**.

About Gateway Alarm Events

In the **Event Log** tab, you can view a list of reported alarm events. The Event Log tab displays the following information:

- **Event ID**—Displays the identifier for the specified alarm event.
- **Type**—Displays the type of event.
- **Time**—Displays the time at which the reported event occurred.
- **Severity**—Displays the severity of the reported event.
- **Message**—Displays the error message used to report the event.
- **Total**—Displays the total number of reported alarm events.
- **Clear All**—Click to clear all events from the Event Log tab.

See Table 1-7 for a list of Gateway-PRI SNMP events.See Table 1-8 for a list of Gateway-Serial SNMP events.

About Gateway Statistics

In the Statistics tab, you can view system-specific information such as call traces and debugging details. The Statistics tab displays the following:

- **Gateway start-up counter**—Displays the number of times that the LifeSize Gateway has reset.
- **Details** button—Click to display the **Details** window, which lists the last three reasons for LifeSize Gateway power failure.
- **ISDN LOF event counter** (Gateway-PRIs only)—Displays the total number of ISDN Loss of Frame (LoF) errors recorded on both LifeSize Gateway PRI ports.
- **CRC error/event counter on ISDN** (Gateway-PRIs only)—Displays the total number of CRC errors on the ISDN network recorded on both LifeSize Gateway PRI ports.
- **ICMP-in-message counter**—Displays the number of Internet Control Message Protocol (ICMP) packets received.
- **UDP-in-datagram counter**—Displays the number of User Datagram Protocol (UDP) packets received.
- **Packet loss counter**—Displays the number of lost packets.
- **Packet late counter**—Displays the number of late packets.
- (Gateway-PRI only) **Accumulated time of B channel usage**—Displays the total B channel usage (in minutes).
- **Counter reset time**—Displays the last time at which the counters were reset.
- **Reset Counters** button—Click to reset all counters to zero.

Configuring Gateway Maintenance Tasks

On the Maintenance tab, you can enter maintenance mode. In maintenance mode, you can perform maintenance work on the LifeSize Gateway, such as upgrading software. In maintenance mode, the LifeSize Gateway cannot accept new calls. You can disconnect all calls currently active in the LifeSize Gateway, or wait for them to disconnect. In maintenance mode, you can only modify the following configuration settings:

- Services (see About Gateway Services on page 57 for more information)
- Fractional B channel status (Gateway-PRIs only) (see Viewing B Channel Status on page 19 for more information)
- Gatekeeper IP connectivity (see Configuring IP Connectivity Settings on page 21 for more information).
- Resource allocation
- IVR (see Configuring IVR Settings on page 28 for more information)

To enter maintenance mode, click **Enter Maintenance Mode**. To exit maintenance mode, click **Exit Maintenance Mode**.

Saving Configuration Settings

You can save LifeSize Gateway configuration settings to a file and then export this file to a storage device on your network. You can use the saved configuration file to restore the settings to the current LifeSize Gateway unit or to configure a similar LifeSize Gateway unit.

An exported configuration file saves most of the current **Device** section settings and all of the current Gateway section settings.

You must use the **Export** button on the toolbar to save the configuration settings to a file. The **Export** button appears only when Gateway section settings are activated. When you save a configuration file, the current **Device** section settings are saved in the file. If you want to change these settings for export, click **Upload** on the toolbar to save these settings to configuration memory prior to saving the configuration file.

Procedure

1. In the LifeSize Gateway interface, on the sidebar, click **Device**.
2. Make sure that the settings in the **Basics**, **Addressing**, **Web** and **Users** tabs are correct.

Note Date parameters are not saved to the configuration file.

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3 Click **Upload** to save these settings.

4 On the sidebar, click **Gateway**.

5 Make sure that the settings on the Status, Settings, PRI or Serial Ports, Calls, Event Log and Statistics tabs are correct.

6 Click **Upload** to save these settings.

7 On the toolbar, click **Export**.

Note A dialog box appears indicating that you are navigating away from the page without saving the changes. Select the option to continue.

The File Download dialog box appears.

8 Save the configuration settings file to your chosen location. The file extension *.ini* is automatically appended to the file name.

IMPORTING CONFIGURATION FILES

You can import the settings of a saved LifeSize Gateway unit configuration file from a storage device on your network. You can use the saved configuration file to restore the settings to the current LifeSize Gateway unit or to configure another LifeSize Gateway unit.

Procedure

1 In the LifeSize Gateway interface, on the sidebar, click **Gateway**.

2 On the toolbar, click **Import**.

The Import a Configuration File page appears.

3 Click **Browse**.

The Choose file dialog box appears.

4 Navigate to and select the configuration file you want to import.

Note The file must have an *.ini* extension.

5 Click **Open**.

The file path appears in the File Name field.

6 Click **Import**.

The file appears in the LifeSize Gateway category window, and the **Upload** button is active.

Note You can open and change settings in any of the LifeSize Gateway category options without losing the original settings in the configuration file. However, you must click **Upload** on the toolbar to retain these setting before selecting another category.

7 Click **Upload** to save the settings in configuration memory.

Note Uploading the file resets the device.

2

USING THE LIFESIZE GATEWAY

This section provides sample scenarios for using the LifeSize Gateway with configuration details and dialing examples, including the following:

- About Dialing Out to the ISDN Network via the Gateway
- About Dialing In to the IP Network via the Gateway

ABOUT DIALING OUT TO THE ISDN NETWORK VIA THE GATEWAY

When you dial out from an IP network to an ISDN network, you dial a service prefix followed by a string that usually includes the destination area code, the destination phone number and any required extra characters such as an asterisk (*), pound sign (#) or delimiter. The service prefix indicates that the call is to go through the LifeSize Gateway, and also indicates the properties of the call such as the call type or bandwidth requirements.

Note References to the ISDN network refer also to the serial side of the Gateway-Serial. The references to B-channels refer also to the equivalent bandwidth for the Gateway-Serial. To obtain the actual serial call rate, multiply the number of channels by 64 Kbps (56 Kbps for restricted calls).

About Gateway Service Prefixes

Gateway services define different call types and bandwidths for IP network endpoints. The services are identified by service prefixes. The network administrator in charge of the H.323 network is responsible for defining services and informing users of available services. See About Gateway Services on page 57 for more information.

Note A service prefix should not be the same as the first digits of an IP endpoint phone number.

Dialing Example 1: Voice calls

The number string 912015294300 is a voice call from an IP network terminal to an H.323 endpoint on another IP network or to a terminal on the ISDN network. This number string consists of:

- 9—The service prefix for a voice call.
- 12015294300—The destination phone number including the area code.

Dialing Example 2: Voice calls with the auto bit-rate setting service

The number string 712015294300 is a voice call from an IP network terminal to an H.323 endpoint on another IP network or to a terminal on the ISDN network using a service with the bit rate setting of auto. This number string consists of:

- 7—The auto bit-rate setting service prefix for a voice call.
- 12015294300—The destination phone number including the area code.

The bit rate of the call is fixed according to the setting in the source IP network terminal.

About Second Number Delimiters

Note Second number delimiters are available in Gateway-PRI only.

To dial an outgoing 2B call, you dial the service prefix for 1B calls and the two B channel phone numbers. Because some H.323 endpoints do not support dialing long number strings or two phone numbers, you can use a delimiter to indicate to the LifeSize Gateway the end of one number and the beginning of the other. See Configuring Outgoing Call Delimiters on page 30 for more information.

Dialing Example 3: 2B video calls

The number string 821816455318* is a 2B video call from an IP network terminal to an H.323 endpoint on another IP network or to a terminal on the ISDN network. Both B channels have the same number. This number string consists of:

- 82—The service prefix for a 2B video call.
- 1816455318—The destination phone number including the area code.
- *—The second number delimiter. The second number delimiter tells the LifeSize Gateway to dial the destination phone number a second time.

Dialing Example 4: 2B video calls

The number string 821816455318*1816455319 is a 2B video call from an IP network terminal to an H.323 endpoint on another IP network or to a terminal on the ISDN network. The B channels have different numbers (or your endpoint does not have two phone number fields). This number string consists of:

- 82—The service prefix for a 2B video call.
- 1816455318—The destination phone number including the area code.
- *—The second number delimiter.
- 1816455319—The second B channel number including the area code.

Dialing Example 5: 6B bonded high quality video calls

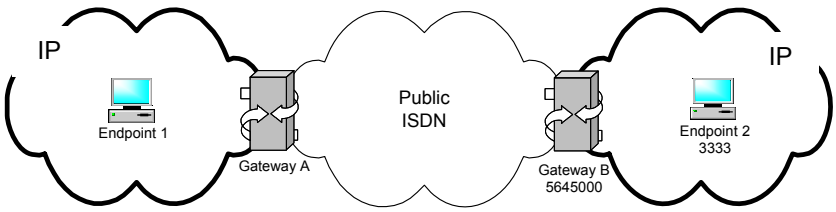
The number string 867455001 is a 6B bonded high quality video call from an IP network terminal to an ISDN network terminal. This number string consists of:

- 86—The service prefix for 6B bonded calls.
- 7455001—The phone number of the destination terminal.

Dialing Example 6: IP-ISDN-IP direct dialing—Gateway supports TCS4

The number string 9825645000^3333 is a call from an IP network endpoint (Endpoint 1) to an IP network endpoint in another zone (Endpoint 2), through a public ISDN network, as shown in Figure 2-1. Gateway A dials using TCS4, while Gateway B is set to receive calls in TCS4 mode.

Figure 2-1 *TCS4 Dialing*



This number string consists of:

- 9—The voice call service prefix in Gateway A in Zone A.
- 82—The service prefix for a 2B video call in Gateway A in Zone A.
- 5645000—The number of the destination Gateway B on the public ISDN network.
- ^—The TCS4 delimiter configured in Gateway A.
- 3333—The E.164 number of the destination IP Endpoint 2.

About Dialing In to the IP Network via the Gateway

The LifeSize Gateway is responsible for routing incoming calls to the requested H.323 endpoints on the IP network.

When a terminal or phone on the ISDN network wants to reach an IP endpoint, it has to dial at least one of the phone numbers assigned to the ISDN line connected to the LifeSize Gateway PRI ISDN port.

About Incoming Call Routing

When a call originating on the ISDN or serial network reaches the LifeSize Gateway, the LifeSize Gateway routes it to an IP network endpoint. This is achieved through one of several incoming call routing methods that the LifeSize Gateway supports. You can enable any number of routing methods for each port, but at least one method must be enabled for incoming calls to be routed through that port. The LifeSize Gateway routes an incoming call from the ISDN or serial network according to the routing methods enabled for the ISDN or serial port, following this order of priority: DID –>TCS4 –>IVR–>Default Extension.

If a routing method fails, the LifeSize Gateway automatically tries to route the call through the next routing method in line. If all methods fail, the call is rejected. The call might also be rejected if the LifeSize Gateway routes the call to an endpoint that is busy or not available.

Table 2-1 explains the routing methods.

Table 2-1 *Routing Methods*

Routing Method	Explanation
DID	The LifeSize Gateway supports two forms of DID (Direct Inward Dialing): Multiple Subscriber Network (MSN) and sub-addressing. ■ MSN—The telephone company assigns a group of phone numbers to a particular ISDN line by the telephone company. PRI ISDN lines are usually assigned multiple numbers in the US and in Europe. When MSN is used, an ISDN terminal or phone can dial directly to an IP network endpoint. The call is still routed through the LifeSize Gateway but the LifeSize Gateway is transparent to the person dialing from an ISDN terminal. An H.323 endpoint on the IP network registers with the gatekeeper using one of the MSN numbers. When an ISDN terminal dials the MSN number, the call routes through the LifeSize Gateway ISDN port connected to the line with the MSN service to the endpoint that registered using the requested number. ■ Sub-addressing (Gateway-PRI only)—Sub-addressing is a one-stage DID dialing mechanism in which a phone sends two numbers. One number is for routing on the circuit switched network. The other number is forwarded to the LifeSize Gateway inside a Q.931 sub-addressing information element for IP address resolution by the gatekeeper. Sub-addressing can also be used for implementing ISDN fallback when not enough bandwidth is available for routing an IP-oriented call over IP. Implementing ISDN fallback requires the support of the gatekeeper.

Table 2-1 Routing Methods (continued)

Routing Method	Explanation
TCS4	TCS4 is a special routing method for incoming H.320 video calls. TCS4 allows direct inward dialing to an endpoint on the IP network through the LifeSize Gateway when DID is not available. H.323 endpoints on the IP network register with the gatekeeper using extension numbers. When an ISDN terminal dials one of the LifeSize Gateway phone numbers followed by a TCS4 extension, the call is routed directly to the corresponding IP endpoint registered with that extension.
IVR	IVR (Interactive Voice Response) is a widely deployed automated call answering system that responds with a voice menu allowing you to make choices for routing the call. The LifeSize Gateway can operate with its own internal IVR or an external IVR located in another device. When an incoming call activates the IVR system, it initiates an interactive session with the caller. The caller directs the call to its destination endpoint by responding with the dialer to prompts from the IVR system. If the caller appropriately enters the destination endpoint phone number, the IVR connects the caller to the requested IP network endpoint. Otherwise, the call can be forwarded to an operator. The IVR call transfer is enabled by a proprietary mechanism that the LifeSize Gateway uses to transfer a call from one IP network endpoint to another. The LifeSize Gateway supports call transfer for incoming calls from the ISDN network to an IP network endpoint whether you are using the LifeSize gatekeeper or a third-party gatekeeper. The LifeSize Gateway internal IVR can handle up to 30 simultaneous incoming calls. With the LifeSize Gateway, you can define an endpoint on the IP network as an IVR operator (see Configuring IVR Settings on page 28 for more information). This provides an alternative if the requested destination endpoint is not available.
Default Extension	Any endpoint on the IP network can be defined as a default destination for calls using the default extension number (including the LifeSize Gateway prefix plus the H.320 or PSTN phone number) that is registered with the gatekeeper. All calls not routed through one of the above incoming call routing methods are forwarded to this endpoint.

About the IVR Operator

You can define an IP network endpoint as an IVR operator and configure the LifeSize Gateway ports accordingly. See Configuring IVR Settings on page 28 for more information.

Dialing Example 7: Direct dialing to an IP network endpoint (LifeSize Gateway supports DID)

The number string 5645001 is a call from an ISDN network terminal to an IP network endpoint. This number string consists of:

- 5645001—The destination endpoint phone number.

The call is routed to the requested endpoint according to its registration identity in the gatekeeper.

Dialing Example 8: Direct dialing to an IP network endpoint (LifeSize Gateway supports TCS4 but not DID)

The number string 5645000^5776 is a call from an ISDN terminal to an IP network endpoint. The dialing endpoint must also support TCS4. This number string consists of:

- 5645000—The LifeSize Gateway phone number.
- ^—The TCS4 delimiter of the dialing endpoint (if required).
- 5776—The extension number of the requested endpoint.

Note TCS4 only routes H.320 video calls.

About Dialing through the IVR

When the LifeSize Gateway does not support DID or TCS4, you can reach an endpoint using the Interactive Voice Response (IVR) routing mechanism.

When IVR is enabled, you are answered by a recorded message prompting you to enter the destination endpoint phone number followed by the pound (#) sign. If you enter the number of an endpoint that is online and currently not busy, the IVR connects the call to the requested endpoint.

Dialing Example 9: Dialing to an IP network endpoint through the IVR

The number string 5645000 <wait for the IVR to respond> 5561# is a call through an IVR routing mechanism. This number string consists of:

- 5645000—The LifeSize Gateway phone number.
- 5561—The number of the requested endpoint.
- #—This is required by the IVR for call completion.

About Dialing Indirectly through an Operator

If you do not dial the number of a destination endpoint when requested to do so by the IVR, the IVR automatically passes you to an operator. You can define any endpoint on the IP network as the IVR operator (see Configuring IVR Settings on page 28 for more information).

When IVR is enabled, you are answered by a recorded message prompting you to enter the destination endpoint phone number. If you do not know the destination endpoint number, the IVR routes the call from the LifeSize Gateway using ISDN to the IP network endpoint that is defined as the IVR operator.

Dialing Example 10: Dialing to an IP network endpoint through an operator

The number string 5645000 <wait for the IVR to respond>* is a call to an IP network through an IVR operator. This number string consists of:

- 5645000—The LifeSize Gateway phone number.
- *—This character is optional.

3

TROUBLESHOOTING THE LIFESIZE GATEWAY

This section covers problems you might encounter when configuring, operating and managing the LifeSize Gateway, and provides suggested actions you can perform to solve the problems.

This section describes the following topics:

- Checking Your Gateway Environment
- Checking Your LAN Environment
- Checking Your ISDN Environment
- Resolving IP-to-ISDN Call Failure
- Resolving ISDN-to-IP Call Failure
- Resolving Peer-to-Peer Call Failure
- Resolving Intermittent Call Failure
- Resolving IP Video Quality Issues
- Resolving ISDN Video Quality Issues
- Resolving Video Channel Issues
- Resolving DTMF Issues
- Resolving Caller ID Issues

Checking Your Gateway Environment

This section describes how to verify that your system status is operational and whether or not the LifeSize Gateway is registered to a gatekeeper.

Verification Steps

- Check the Status screen in the LifeSize Gateway, and table of endpoints in the gatekeeper.
- Check that the Gateway PRI/BRI synchronization is correct (the CD LED is green on the LifeSize Gateway board).
- Check the ISDN connectivity to the public ISDN switch or the PBX/PABX.
  - Verify at Gateway > Board (or Device) > LED Monitoring that the far/near (red/yellow) LEDs are off. If they are on, contact the ISDN provider.
  - (Serial LifeSize Gateways only) Verify that the Serial cables are properly connected to the RTM.
- Check that the LifeSize Gateway LAN interface is working at 100Mb/Full Duplex. If not, hard code it on both sides (switch and LifeSize Gateway) to 100Mb/Full Duplex and restart both devices.

Checking Your LAN Environment

This section describes how to verify that your LAN network connection is operating correctly.

Verification Steps

- Check that your H.323 entities are properly registered to the gatekeeper.
- Make a call between two LAN endpoints and verify the video and audio quality.
- Verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.

Checking Your ISDN Environment

This section describes how to verify that your ISDN network connection is operating correctly.

Verification Steps
■ Check that the video endpoint is ISDN enabled and has ISDN lines connected and properly configured for bonding calls. ■ Make an ISDN-to-ISDN call and verify the video and audio quality. ■ At Gateway > Port verify that all necessary ISDN ports are enabled. ■ At Gateway > Board (or Device) > LED Monitoring verify that the CD LED is steady green. If it is off, check the ISDN physical layer setting. ■ At Gateway > Port > Physical Interface confirm proper country selection, signaling protocol and network access settings (TE is most commonly used). ■ Some Central Switches/PBXs/PABXs require Double Framing or Extended CRC4 framing. At Gateway > Port > Physical Interface > Advanced confirm proper framing selection.

Resolving IP-to-ISDN Call Failure

This section describes what to do if IP-to-ISDN calls fail to connect.

Possible Causes	Verification Steps
The LifeSize Gateway is not registered to the gatekeeper.	■ Verify at Gateway > Settings > IP Connectivity that the LifeSize Gateway is in Using gatekeeper mode and not in Peer-to-Peer mode. ■ Verify at Gateway > Settings > IP Connectivity that the gatekeeper IP address is correct. ■ When using more than one LifeSize Gateway, verify that each LifeSize Gateway has a unique registration name.
The LAN endpoint dialed the wrong LifeSize Gateway access prefix.	Confirm that the correct LifeSize Gateway service prefix is used.

Possible Causes	Verification Steps
The H.320 endpoint is unavailable or busy, or there is an ISDN connection problem.	Make a direct video call to the ISDN endpoint from another ISDN endpoint to identify whether the source of the problem is the ISDN endpoint or the LifeSize Gateway.
The LAN endpoint made the call while set to ISDN call mode, instead of LAN call mode.	Change the endpoint dialer to LAN mode and try calling again.
The LifeSize Gatekeeper table of services does not include the LifeSize Gateway services because the LifeSize Gateway is set to H.323 version 1 mode registration	■ At Gateway > Settings > IP Connectivity set the LifeSize Gateway registration mode to Version 2 and try to make the call again, –or– ■ Add the LifeSize Gateway services manually to the LifeSize Gatekeeper table of services.
The LifeSize Gatekeeper is set not to accept calls.	Set the LifeSize Gatekeeper to accept calls at Gatekeeper > Settings > Calls.
The LifeSize Gateway service is a substring of a LifeSize Gatekeeper service, endpoint E.164 number, or LifeSize Multipoint service.	Check the LifeSize Gatekeeper table of endpoints. ■ Look for an E.164 number that begins with the specified service prefix. ■ Double click each network LifeSize Multipoint, and look for a service that begins with the specified service prefix.
The ISDN endpoint does not support the call bandwidth.	Check the ISDN endpoint supported bandwidth. Dial again with an appropriate bandwidth.

Resolving ISDN-to-IP Call Failure

This section describes what to do if ISDN-to-IP calls fail to connect.

Note In this section we assume that the LAN endpoint is an H.323 endpoint.

Possible Causes	Verification Steps
The LAN endpoint does not appear in the gatekeeper list of registered H.323 endpoints.	Make sure that the LAN endpoint is properly registered with the gatekeeper, and make the call again.
ISDN Central Switch/PBX/PABX call routing problem.	■ Open a Telnet connection to the LifeSize Gateway. ■ Make an ISDN-to-IP call. ■ Verify whether the call reaches the LifeSize Gateway. ■ If the call does not reach the LifeSize Gateway, ask the ISDN provider to check the ISDN Central Switch/PBX/PABX call routing rules.
The LifeSize Gateway DID option is checked but there is no endpoint with such a DID number on the LAN.	■ Check that a LAN endpoint with the same DID number is registered with the gatekeeper. ■ Check the LifeSize Gateway log and make sure that the ISDN network delivered the correct Called Party Number to the LifeSize Gateway. ■ You may need to redefine the LAN endpoint E.164 number accordingly (sometimes the ISDN network is set to deliver only the last 3-5 digits). ■ Make a call to another properly registered endpoint to see if the source of the problem is the LifeSize Gateway or the endpoints.

Possible Causes	Verification Steps
The LifeSize Gateway TCS4 option is checked and the dialing delimiter is not a legal TCS4 delimiter.	■ Ensure that the initiating endpoint uses the correct TCS4 delimiter (see the endpoint users guide). ■ Verify that the endpoint you are using supports TCS4.
The LifeSize Gateway IVR option is checked but there is no endpoint with such an E.164 number on the LAN.	■ Check that a LAN endpoint with the same E.164 number that you dialed during the IVR phase is registered with the gatekeeper. ■ You may need to register the LAN endpoint to the gatekeeper with a correct E.164 number. ■ Check that the ISDN endpoint DTMF generation works properly: ■ Open a Telnet connection to the LifeSize Gateway. ■ Make a call to the LifeSize Gateway IVR. ■ Dial the E.164 number using DTMF tones. ■ Check the Telnet log for correct DTMF digit detection. ■ Make a call to another properly registered endpoint.

Resolving Peer-to-Peer Call Failure

This section describes what to do if peer-to-peer calls (both IP-to-ISDN and ISDN-to-IP calls) fail to connect.

Note In this section we assume that the LAN endpoint is an H.323 endpoint.

Possible Causes	Verification Steps
One of the peers does not exist.	Check that the peer is configured in the peer list at Gateway > Settings> IP Connectivity.
Ports configuration mismatch.	In the peer list at Gateway > Settings> IP Connectivity, check that: ■ The LAN endpoint is configured with the correct signaling port number. ■ The LifeSize Gateway Q.931 port is identical to the port configured in the LifeSize Gateway (using the Advanced Commands).
The wrong dial plan is in use—the destination number does not begin with a LifeSize Gateway service.	Change the destination number.

Resolving Intermittent Call Failure

This section describes what to do if calls intermittently fail to connect.

Possible Causes	Verification Steps
PRI/E1 line is fractional.	Check with the PRI line provider if the PRI/E1 line is a fractional line (Economy PRI/E1 in the UK). If so, At Gateway > Port > Physical Interface set the Fractional button to use the correct channels only.

Resolving IP Video Quality Issues

This section describes what to do if you encounter poor video quality on the IP endpoint on your LAN.

Possible Causes	Verification Steps
The LAN port of the unit is not synchronized with the LAN switch.	Hard code both the LifeSize Gateway and the switch to 100Mb/Full Duplex at Gateway > Board (or Device) > Addressing > Port settings
Call rate problem.	■ In LAN-to-ISDN calls, verify that you are using the correct service prefix set with correct bit rate in the LifeSize Gateway. ■ In Gateway > Settings > Advanced, verify that the Ignore bearer rate and force service rate option setting is not the cause.
Packet loss and packet reordering, re-transmission, jitter or delay.	Verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.
The LAN network is suffering from massive packet loss.	At Gateway > Settings > Advanced, verify that Enable packet handling is checked, and increase the value of the Network jitter tolerance parameter if necessary.

Resolving ISDN Video Quality Issues

This section describes what to do if you encounter poor video quality on the ISDN endpoint.

Possible Causes	Verification Steps
The ISDN connection is not stable, and the orange/yellow panel LEDs are steady or flickering.	■ Call your operator for help. ■ Check your PABX.

Possible Causes	Verification Steps
ISDN endpoint problem.	Make a call to other ISDN endpoints (from the same vendor and from different vendors). If the video quality is good, there may be an interoperability problem with the specific endpoint.
LAN endpoint problem.	Make a call from another LAN endpoint. If the video quality on the ISDN endpoint is good, the problem lies with the LAN endpoint you are calling from.
LAN problems.	Make a LAN-to-LAN call and verify that the LAN interface performance is satisfactory (no packet loss, jitter or delay issues occur). Check with the network administrator if necessary.
Video bit rate sent from the LAN side is too low.	Check the LAN endpoint bearer capabilities/call rate settings for the LAN-to-ISDN call.
ISDN Downspeeding occurs due to dropped ISDN lines.	If the problem recurs, check with the ISDN provider at both ends of the connection.

Resolving Video Channel Issues

This section describes what to do if video channels fail to open on the ISDN or LAN endpoint.

Possible Causes	Verification Steps
The LAN endpoint or ISDN endpoint does not support the required video codecs.	At Gateway > Calls> Details check that the video channels are open to the ISDN and to the LAN side.
Some of the media modes in the Gateway configuration are disabled.	At Gateway > Settings > Media Modes verify that all the relevant video codecs are checked.

Resolving DTMF Issues

This section describes what to do if DTMF is not operating correctly.

Possible Causes	Verification Steps
DTMF is not enabled in the LifeSize Gateway.	IP-to-ISDN calls ■ At Gateway > Settings > Advanced verify that Translate DTMF signal from IP Out-of-band (H.245) to ISDN in-band (ISDN G.711 only) is checked. ■ If this is a video call, verify that this option is checked for both voice and video calls. ISDN-to-IP calls ■ At Gateway > Settings > Advanced verify that Duplicate DTMF Signal from ISDN side as Out of band on IP side is checked.
The LifeSize Gateway does not properly identify DTMF tones.	Open a Telnet connection to the LifeSize Gateway and verify that you see the DTMFs in the LifeSize Gateway log. If not, verify that the ISDN endpoint generates the DTMF tones.
An incorrect audio codec is used.	Verify that the G.711 audio codec is used in the call is G.711 (the LifeSize Gateway supports DTMF detection for G.711 only). If another audio codec is used, force the call to G.711 mode by disabling all the audio media modes at Gateway > Settings > Media Modes.

Resolving Caller ID Issues

This section describes what to do if an incorrect caller ID is used in IP-to-ISDN calls.

Possible Causes	Verification Steps
The calling LAN endpoint is set in the LifeSize Gatekeeper to use a fixed Calling Party Number.	Delete the LAN endpoint line from the LifeSize Gatekeeper Endpoints table and let it register again.
The LifeSize Gatekeeper is set to use a fixed Calling Party Number.	At Gatekeeper > Settings > Advanced uncheck Use Fixed Calling Party Number.

4

USING THE LIFESIZE AUDIO MESSAGE UTILITY FOR IVR MESSAGING

- About the LifeSize Audio Message Utility
- About Gateway Call Routing
- Launching the Audio Message Utility
- Playing a Message
- Recording a Message
- Replacing a Message
- Uploading a Message to a Device
- Viewing Message Details
- Exiting the Utility
- About Express Setup
- Using Express Setup

About the LifeSize Audio Message Utility

The LifeSize Audio Message Utility is an interactive GUI that enables you to record and replace messages and upload new messages to the call routing mechanisms in LifeSize devices.

Default built-in messages are in English. The LifeSize Audio Message Utility allows you to record new messages in a different language or with different content to suit your requirements. The LifeSize Audio Message Utility also enables you to replace and upload new messages to the target LifeSize device.

There are two ways of using the LifeSize Audio Message Utility. The standard utility functions enable you to play, record or replace messages. The Express Setup guides you through the recording, replacing and upload procedure for each message.

Before You Begin

Before you can record, play and upload messages to the target LifeSize device, you must

- Save recorded messages as WAV files.
- Know the IP address of the target device.

About Gateway Call Routing

The LifeSize Audio Message Utility provides audio messages for the call routing mechanism in LifeSize LifeSize Gateways. The call routing mechanism initiates a series of voice messages that allow you to make choices and respond via the keypad through dial tones (DTMF).

The routing mechanism enables you to dial through the LifeSize LifeSize Gateway to an IP network-based H.323/SIP/RTSP terminal when you do not know the extension number of the destination terminal.

Launching the Audio Message Utility

Procedure

1 Copy the Audio Message Utility folder from the LifeSize Utilities and Documentation CD-ROM to your local computer.

Note You cannot run the Audio Message Utility from the LifeSize Utilities and Documentation CD-ROM.

2 To run the utility, double-click the *IvrRecordingUtility.exe* file.

Playing a Message

This section describes how to play an audio message. Available messages depend upon the device selected in the **Target Type** field.

Procedure

1 In the **Target Type** field, choose the device that uses the message you want to play.

Note The options available in the **Target Type** drop-down list vary according to the LifeSize devices included in your installation.

The **Audio Recordings** window displays the messages currently uploaded to the target device.

2 Ensure the message type you wish to play is enabled in the **Audio Recordings** window.

3 Click on the message type you wish to play in the **Audio Recordings** window.

4 From the **Message** menu, select **Play Message**.

The **Play Recording** dialog box appears. You can stop or replay the message you have selected to play.

Related Topics

- Available LifeSize Gateway Messages

Available LifeSize Gateway Messages

Table 4-1 *LifeSize Gateway Audio Messages*

ID	Message Name	Recorded Message	Played when ...
0	Opening Sound	Sound.	the call connects
1	Welcome	Thank you for calling. If you know your party's extension, please dial the number, followed by the pound sign now. To speak to an operator, please press star.	the call connects after the opening sound
2	Transfer to extension	Thank you, please hold.	you dial an extension after the welcome message
3	Transfer to operator	Please hold. Your call is being transferred to an operator.	you press * after the welcome message
4	Busy	The number you have dialed is busy.	the dialed extension is busy
5	No answer	No answer from this extension.	there is no answer from the dialed extension
6	Unreachable	The number you have dialed is unreachable.	the dialed extension is unreachable

Table 4-1 LifeSize Gateway Audio Messages

ID	Message Name	Recorded Message	Played when ...
7	Disconnecting	Could not connect your call. Disconnecting.	the transfer to the operator or the default extension fails.
8	Please dial a number	Dial a number followed by the pound sign. To speak to an operator, press star.	an attempt to connect to an extension fails (busy, no answer or unreachable). The user is allowed to dial the extension number again.
9	Transfer to default extension	Please hold.	the call is being transferred to the default extension.

RECORDING A MESSAGE

Before You Begin

There is no limit on the length of individual message files, but the total length of all WAV files should not exceed 250 seconds. An FLS file should not exceed 2000 KB.

Procedure

1 From the **Message** menu, select **New Recording**.

The **New Recording** confirmation box appears and the MSsound recording utility is invoked.

Note MSsound is invoked by default. You can use any recording software that supports the WAV format.

The new message must be recorded in the following formats:

- WAV file
- G.711 (CCITT)
- µ-Law

- 8-bit
- Sampling rate 8kHz

2 Use the recording software, to record a new message and save it to the LifeSize Audio Message Utility directory.

REPLACING A MESSAGE

Procedure

1 In the **Target Type** field, choose the device that uses the message you want to replace.

Note The options available in the **Target Type** drop-down list vary according to the LifeSize devices included in your installation.

2 The **Audio Recordings** window displays the messages currently uploaded to the target device. Click the message type in the **Audio Recordings** window you wish to replace.

3 From the **Message** menu, select **Properties**.

The **Properties** dialog box appears showing the name of the message you selected in the **Message Type** field.

4 (Optional) Enter the text that you want to appear in the **Message Type** field in the **Audio Recordings** window.

5 In the **Video message** field, enter video message text.

6 Click **Browse** to choose the audio message file you wish to use.

The **Replace Recording** dialog box appears.

7 Select the file with which you wish to replace the current message and click **Open** to confirm your selection.

8 Click **OK** in the **Properties** dialog box.

9 The new message appears in the **Audio Recordings** window.

Uploading a Message to a Device

Procedure

1. From the **Actions** menu, select **Upload Messages To Target**.

   The **Upload** dialog box appears.
2. In the **General Information** section, enter the IP address of the target device.
3. In the **Login Information** section, enter the user name and password of the target device, as configured in the device network configuration settings.
4. (Optional) Modify the read and write community settings for the target device as follows:
   - Click **Customize SNMP Settings**.

     The **Customize SNMP Settings** dialog box displays.
   - Enter the required read community and write community values and click **OK**.
5. Click **Upload Messages**.

   The **Upload in progress** window appears, and the message files are uploaded and burned onto the target device.

Viewing Message Details

You can view the file name and length of the audio messages listed in the **Audio Recordings** window.

Procedure

1. Click the **Target Type** drop-down list.
2. Choose the device that uses the message you want to replace.

Note The options available in the **Target Type** drop-down list vary according to the LifeSize devices included in your installation.

The names of audio message files currently uploaded to the target device appear in the **Recorded Message** field of the **Audio Recordings** window.

The lengths of audio message files currently uploaded to the target device appear in the **Message Length (sec)** field of the **Audio Recordings** window.

Exiting the Utility

Procedure

1. Open the **Actions** menu.
2. Select **Exit**.

About Express Setup

The Express Setup is an alternative way of recording, replacing and uploading messages. The Express Setup guides you through the recording, replacing and uploading procedure for each audio message.

You proceed through the Express Setup sequentially for each message type. You are alternately prompted to select to record a new message and to navigate a path to a new message file with which you wish to replace a current file.

As you proceed through the Express Setup, the dialog box displays the name the current message type and the associated message file.

Note You can skip the recording and replacing sequence for each message by clicking **Next** at each step in the Express Setup. You can return to any step in the procedure to change the setup for a particular message by clicking **Back**.

Using Express Setup

Procedure

1. Click **Express Setup** in the **Tools** menu.

   The **Express Setup** dialog box is displayed informing you of the name of the first message file in the selection and provides a check box for indicating whether you wish to create a new recording for the message.

2. Check **Create a new recording** and click **Next**.

   The **Express Setup** dialog box displays the required format settings for the new message and the MSsound recorder is displayed. Use the MSsound recorder or other recording software to record the new message and save it to the Audio Message Utility directory.

3. When you have finished recording a new message, click **Next**.

   The **Express Setup** dialog box displays the path of the current file for the specified message type and the **Replace** button.

4. Click **Replace**.

   The **Replace Recording** window appears showing the directory containing the current sound files for the device.

5. Select the required file and click **Open** to replace this file with the current message file for the specified message.

   When you have completed the recording and replacement procedure, the **Express Setup** dialog box displays the new list of message types and message files associated with each type.

6. Click **Upload**.

   The **Upload** dialog box appears.

7. Type the IP address of the target device.

8. Type the user name and password as defined in the network configuration settings of the LifeSize device.

9. Click **Upload Messages** to complete the upload procedure.

   The **Upload in progress** window displays. The message files are uploaded and burned onto the target device.

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